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Report of the Fifty-third Annual Meeting, U. S. Livestock Sanitary Association

FOLLOWING the precedent of meeting in cities other than Chicago, which was set last year when the Association met in Denver, the fifty-third annual meeting of the United States Livestock Sanitary Association was held in Columbus, Ohio, October 12 to 14, 1949. As was the case last year, the meeting was not so well attended as those formerly held in Chicago, but about 350 were registered and by all standards the meeting was a successful one.

The Secretary, Dr. R. A. Hendershott, reported having attended meetings of various associations as a representative of the Association; among others, the annual meeting of the state secretaries and directors of agriculture, where resolutions were adopted recommending:

1. Research on vaccination against brucellosis by other than the subcutaneous route.

2. Restrictions on the interstate shipment of cattle affected with brucellosis like those imposed upon tuberculous cattle.

3. More uniform regulations for the interstate shipment of animals.

4. That producers and distributors of serums, vaccines, viruses, and diagnostic agents be required to report the sales of these products to the livestock sanitary authorities of the state into which the products are sent.

5. That Brucella vaccine be tested by the BAI and if found meritorious that its manufacture be licensed.

The secretary reported that 50,000 copies of What is Known About Brucellosis had been distributed and a second printing was in process to supply the continuing demand for this pamphlet.

The income of the Association for the year was stated to be $15,364.10 and the expenditures $13,769.39, leaving a balance of $2,294.40 in the treasury.

The Committee on Necrology reported that six members had died during the year: Dr. W. J. Butler, state veterinary surgeon of Montana, October 31, 1948; Dr. George Alexander Dick, formerly dean of the School of Veterinary Medicine, University of Pennsylvania, October 15, 1948; Dr. Philip L. Grant, September 23, 1949; Mr. Arthur James, February 28, 1949; Mr. William Long, February 22, 1949; and Dr. Walter D. VanCleave, February 19, 1949.

Dr. Charles P. Bishop, for ten years Director of the Bureau of Animal Industry in the Pennsylvania State Department of Agriculture, was honored recently when elevated to the presidency of the United States Livestock Sanitary Association. Doctor Bishop has been associated with the Department in his state for 27 years.

In the president's annual address, Dr. T. O. Brandenburg, state veterinarian of North Dakota, discussed a hush-hush subject—the incompetence of too many of those at the head of the livestock sanitary forces in states where appointments to these positions are made solely for political reasons and without any regard for merit (pages 24 to 27 of this issue). On this subject, he repeated and endorsed the scathing criticism of the livestock sanitary services of many states which Dr. James Farquharson voiced in his presidential address at the Boston Meeting of the A.V.M.A., and Farquharson, in turn, was repeating and endorsing statements made in 1905 by Leonard

Pearson. Mediocrity in the office of state veterinarian is not a recent discovery, but few have criticized it publicly, and still fewer, if any, have attempted to do anything about it, although it is certainly a field in which state veterinary associations have a responsibility to the profession, to the livestock industry, and to the public.

In the broad central area between Pennsylvania and Colorado, except for the states south of the Ohio River and those on the Canadian border, the rule has been and, still is, with few

Dr. R. A. Hendershott
Re-elected Secretary-Treasurer of the U.S.L.S.A.

exceptions, to change the state veterinarian or livestock sanitary commissioner with changes in the office of governor.

The BAI has long deplored "frequent changes in the office of state veterinarian" and, as President Brandenburg said, has attempted to remedy it, in part, by designating a Bureau man with coordinate authority with the state official, which was probably about the worst way to do the job, as Brandenburg emphasizes.

The paper was not presented as a criticism of any person or individual department, but of a system. The purpose of the study reported by Doctor Brandenburg was to focus attention of all on the necessity for betterment of cooperative livestock disease control efforts of state organizations and the BAI.

The selection of officers for the ensuing year resulted in the choice of:

C. P. Bishop, state veterinarian of Pennsylvania for president.

F. E. Mollin, Denver, Colorado, 1st vice president.

R. L. West, St. Paul, Minnesota, 2nd vice president.

T. Childs, Dominion of Canada, 3rd vice president.

R. A. Hendershott, Trenton, New Jersey, reelected secretary-treasurer.

Resolutions

Resolutions were adopted (1) inviting members of the National Brucellosis Committee to attend and participate in meetings of the U. S. L. S. A., (2) urging that livestock owners be alerted to report the occurrence of any vesicular disease in their animals to their local veterinarians or the livestock sanitary authorities as a measure to speed the detection of foot-and-mouth disease should it invade this country, (3) petitioning the BAI to permit the continued manufacture and sale of the five-dose package of desiccated Brucella vaccine as a measure of economy, (4) urging manufacture and distribution of antigen for the ring test for brucellosis be restricted to the BAI, (5) endorsing a resolution of the Montana Stock Growers Association urging all possible research be devoted to white muscle disease, (6) pledging the undying love and affection of members of the Association for the veterinary practitioner, and assuring him a part in disease control when they were unable to obtain appropriations for the pay of full time employees (however, not in those words of course) and twitting the A.V.M.A. for the discontinuance of its section on sanitary science, "which was a common meeting ground for practitioners and members of the livestock sanitary regulatory forces", (7) approving Senate bill 2188 (concerning the interstate movement of cattle affected with brucellosis), (8) urging research by the BAI, independently or in cooperation with state agencies, into the prophylaxis and therapy of brucellosis; currently into (a) the newer antibiotic agents or other drugs which may have promise, (b) mucoid vaccine to determine its value in the control and eradication of brucellosis and its safety to the public health, (c) revaccination and vaccination of adult animals, (d) intradermal vaccination (e) differentiation between Brucella infection and vaccination reactions, (9) petition the Congress to amend the livestock disease control laws to authorize the Secretary of the USDA to regulate the distribution of serums, vaccines, viruses and toxines and to require appropriate reports of all interstate shipments of such products, and (10) various resolutions expressing appreciation of the efforts of all who had contributed to the success of this meeting, the convenience of members of the Association and to the en-

joyment of those in attendance at the meeting.

The notes that follow must not be thought to be the exact statements of those who contributed to the program, nor the substance of their discussion, but rather as adumbrations. It is perhaps best to regard them as impressions obtained from the various addresses and committee reports.—D. M. C.

● CHICK EMBRYO LIVING VIRUS RABIES VACCINES

Notes from an address by Herald Cox, Sc. D., Director, Section for Viral and Rickettsial Research, Lederle Laboratories, Pearl River, N. Y.

The high immunizing capacity of the killed-virus, rabies vaccines at present employed in the control of rabies, was established beyond question by Johnson of the Rockefeller Foundation, and the great value of these vaccines in the control of rabies, particularly in suppressing epidemics of the disease, has been demonstrated fully by the use of hundreds of thousands of doses in the field, both privately and in official rabies control projects.

However, with all its value, this vaccine is subject to various shortcomings, perhaps the most important of which are: (1) the immunity it induces is fleeting and must be renewed, usually annually; (2) it is not a harmless product and neuroparalytic accidents following its use are reported ever more frequently; and (3) the cost, which has increased appreciably during recent years, has become of significant importance to both user and manufacturer, particularly when the compulsory vaccination of all dogs in a city, county, or state is being considered.

It was because of the shortcomings enumerated in the foregoing that an extensive program of rabies research was undertaken four years ago.

At least six strains of rabies virus have been adapted to chick embryo passage, but on the basis of preliminary tests the Flury strain seems to be the one of choice for a living-virus, immunizing agent. This strain was obtained from Dr. Harold N. Johnson of the Rockefeller Foundation. It was isolated from the spinal cord of a child, who died of rabies. It was passed serially by Doctor Johnson in the brain tissues of day-old chicks. The virus was received at the 136th chick passage and transferred serially in chick embryos for more than 120 passages.

After extremely satisfactory results were obtained in laboratory animals from tests of the safety and immunizing capacity of the chick-embryo, living-virus vaccine, extensive tests on dogs were conducted, first in a large number of dogs in the laboratory and later upon thousands of dogs and a small number of farm animals in Georgia, in New York State and on Staten Island. The tests in Georgia were conducted under the supervision of Dr. L. E. Starr and Dr. Thomas E. Sellers of the Georgia State Department of Health. The tests in New York were made under the supervision of Dr. Alexander Zeissig, Department of Health, State of New York, and the Staten Island tests were directly supervised by Dr. Ralph Muckenfuss, Dr. Morris Greenberg, and Dr. Herbert Baum of the New York City Health Department. In none of the more than 7,500 dogs that were given this vaccine was the slightest untoward effect noted.

All dogs at the laboratories were challenged with massive injections of street virus and the vaccinated dogs have remained well to date—a period of eight months. A large number of them are being held for duration tests, which will be conducted over a period of years. Since the vaccine contains living, though avirulent (for mammals) virus, it is confidently expected that the immunity will be long lasting.

● USE OF AVIANIZED RABIES VACCINE

Notes from a discussion by L. E. Starr, D.V.M., Ph.D, Public Health Veterinarian, Department of Public Health, State of Georgia, Atlanta.

The vaccination of dogs for the prevention of rabies is expensive. It must include 80% of the dogs in a community or state to be effective and must be repeated annually. On this account and for the further reason that the vaccine in use at present is not a harmless product, it was decided to make a field trial of avianized rabies vaccine. The lenghtened immunity produced and the lower production cost, which laboratory trials appeared to promise, further stimulated our interest in this new product.

It is planned to vaccinate 7,000 dogs and a smaller number of cattle and other animals with the avianized vaccine. In the fall of 1948 and up to October 1, 1949, 422 dogs were vaccinated, in counties where rabies epidemics existed. It is known positively that of this group three foxhounds and five other dogs have since been bitten by rabid animals. It is possible that others of this group have been bitten without the circumstance coming to the knowledge of their owners. None has contracted the disease

and none of the 422 vaccinated has been harmed by vaccination.

Four herds of cattle have been vaccinated. Of these, two herds, comprising 181 cattle, had been exposed to rabid dogs, but what, if any, animals had been bitten was unknown.

In these herds, three animals had died of rabies by the tenth day after vaccination and two additional animals were sick on the sixteenth postvaccination day. These animals died after a prolonged, atypical course and negri bodies were demonstrated in the brain. It is believed that all five of these animals had been inoculated before they were vaccinated and the course of the disease in the last two that died was modified materially by the vaccine.

A few goats were vaccinated and remained well. Neither the cattle nor the goats showed any reaction to the vaccination.

At this date, 219 days have elapsed since these four herds of cattle were vaccinated and loss from rabies has been confined to the five cases described in the two exposed herds. The goats too have remained well.

● THE FOOT-AND-MOUTH DISEASE SITUATION

Notes from the report of the Committee on Foot-and-mouth Disease by H. F. Wilkins, State Veterinary Surgeon, Helena, Montana, Chairman.

This committee reported that vesicular stomatitis is rather widespread over the western and southwestern states and so-called mycotic stomatitis is even more widespread in those regions and in the southeastern states. It emphasized that because of the continuation of foot-and-mouth disease in Mexico it is most important that in every case of mouth or foot lesions in cattle and other susceptible animals a definite diagnosis be made before it is released, as a precaution against overlooking foot-and-mouth disease.

The battle against the disease in Mexico continues to be pushed vigorously. To September 30, 1949, more than 27,500,000 doses of vaccine had been given to cattle, sheep, goats, and swine. The 13,000,000 animals in the quarantined area had been vaccinated by early August, 1949; 10,500,000 had been vaccinated a second time and more than 3,500,000 the third time. As many as 3,500,000 animals have been vaccinated in a single month. The foot-and-mouth disease laboratories near Mexico City have manufactured more than 31,000,000 doses of vaccine; in the peak production month more than 5,200,000 doses. The inoculation of 10,000 to 12,000 healthy cattle per month is required for vaccine production. These animals are later slaughtered. The American personnel in the eradication forces number 1,100; the Mexican personnel, exclusive of Mexican Regular Army guards, 2,500. The cost of the work is $2,250,000. per month.

As part of the normal (to it) routine, the U. S. government sustained another big loss on the 137,000,000 pounds of canned meat it purchased in Mexico—paid more than it could sell it for. The department urgently needs the loan of a buyer from some of the packing companies. Or it should frankly admit subsidizing the cattle industry of northern Mexico for political reasons.

Foot-and-mouth disease in Mexico has not broken the quarantine lines and inside the quarantined area has been reduced to a low ebb by vaccination, but infection is still there and while it remains the danger persists.

The Committee attempted a resumé of the foot-and-mouth disease situation the world over; however, at least as to western Europe, its information applied to the summer of 1948, and was not accurate in all respects even for that date. It reported "the extensive sweep of the disease in epizootic form throughout most of Continental Europe". With the possible exception of Spain there is little foot-and-mouth disease in any country in western Europe but France. In that country the type is mild and little, if anything, is being done about it, probably because of far graver political and economic problems. In Germany the disease has been kept under control although, again for political and economic reasons, eradication has not been attempted. Switzerland has only occasional small outbreaks, mostly limited to the original premises. The Netherlands with land borders and, unlike Switzerland, with no protection from mountain barriers, cannot hope to keep the disease out by quarantine and hence, when her neighbors have it, she vaccinates all her cattle (the all is taken literally) once a year. On this account the disease does not now exist in Netherlands in epizootic or other forms.

Incidentally, the Netherlands manufacture of vaccine is in strange contrast to the production in Mexico. In Amsterdam it is made in a small laboratory in the downtown section of the city. No 10,000 nor any other number of cattle is used. The rumens are obtained from recently slaughtered healthy cattle, the mucous membranes stripped from the muscular wall, cut into small pieces, inoculated with foot-and-

mouth disease virus, and incubated for 24 hours. The virus is then heat-killed and bottled and they have a vaccine that protects cattle for 12 months. On inoculation tests an occasional animal, a rare one, will acquire the disease after nine months but for practical purposes (field exposure) the immunity persists for 12 months. The vaccine costs so little to produce and can be made in such enormous quantities so rapidly that very large doses (30 cc.) can be given. This may explain the long duration of the immunity. If the Netherlands (Frenkel) vaccine were used in Mexico it would save the major portion of the cost of the vaccine now being used and the cost of two-thirds of the personnel using it. In its report the Committee implied that foot-and-mouth disease vaccine made from virus grown on artificial media is in the experimental stage. Such definitely is not the case. Millions of doses of it have been used in the field with results materially superior to those reported for the vaccine made by the inoculation of cattle.

The Committee commended the work of *La Comision Mexico—Americana para la Eradicacion de la Fiebre Aftosa,* urged support of the campaign for eradication of the disease, recommended research looking to the development of serological or allergy tests or other improved means of diagnosis, and also that a stock-proof fence be built along the Mexico-United States boundary.

● CURRENT RESEARCH ON FOOT-AND-MOUTH DISEASE

Notes from an address by M. S. Shahan, D.V.M., Bureau of Animal Industry, Washington, D. C.

Under cooperating agreements with England, Netherlands and Denmark, three or four Bureau veterinarians are kept in Europe constantly studying foot-and-mouth disease.

The work in Mexico constitutes a huge scale experiment in intradermal vaccination. Because of the difficulties of transportation in Mexico and the necessity for refrigeration, the 2 cc. dose of vaccine is deemed best for employment there.

The Congress appropriated $500,000. for the preparation of plans for a foot-and-mouth disease research and vaccine production laboratory in the United States and for an option on a suitable site for the laboratory. The plans will be drawn and presented to the Congress before June 30, 1950. A site for the laboratory will also be chosen before that date.

● WORLD FOOT-AND-MOUTH DISEASE SITUATION

Notes from a report by S. O. Fladness, D.V.M., Bureau of Animal Industry, Washington, D. C.

Despite the fact that foot-and-mouth disease exists in most of the remainder of the world, no outbreak has occurred in the United States for more than 20 years.

Notwithstanding the great changes in the means of transportation and our enormously increased importation, our foreign quarantine has barred the entrance of this disease for a score of years. The foreign quarantine is a completely negative service, unspectacular in success and never heard about except in failure. Because it is little known, it needs support.

Lesions of foot-and-mouth disease in the interdigital space in cattle.

The last outbreak of foot-and-mouth disease, which occurred in 1929, was discovered almost immediately and completely eradicated in 60 days.

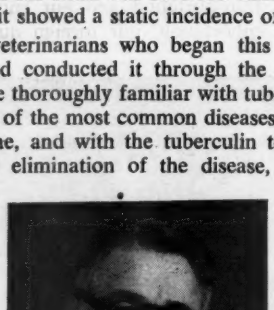
● TUBERCULOSIS ERADICATION

Notes on a report by Asa Winter, D.V.M., Assistant in charge of the Tuberculosis Eradication Division, Bureau of Animal Industry, USDA, Washington, D. C.

A healthy concern is developing in the matter of the bovine, avian and swine tuberculosis problems. With the completion of accreditation of all counties and states in 1940 and the announcement that the disease among cattle had been reduced to 0.46% in the whole country, there was a great feeling of relief among veterinarians engaged in the eradication and the attack on the disease lost con-

siderable of its vigor. However, the momentum of the effort carried the incidence of bovine tuberculosis to an all-time low of 0.18% by 1943 when complacency as to the disease replaced concern among both veterinarians and the livestock industry. There was a slight increase in the incidence of the disease in 1944 and a greater increase in 1945. Then came the scathing criticism of the work by the Committee on Tuberculosis of this association in 1946 and the trend was reversed until in 1948 and '49 it showed a static incidence of 0.19%.

The veterinarians who began this work in 1918 and conducted it through the 20's and 30's were thoroughly familiar with tuberculosis, then one of the most common diseases of cattle and swine, and with the tuberculin test. With the near elimination of the disease, material



Dr. Jacob Traum

for student demonstration purposes became unavailable and many of the younger veterinarians who had taken up the work since the late war were unfamiliar with the disease and with interpretation of the test. This could constitute a great handicap to the eradication project when the older men must be supplanted.

To familiarize future veterinary graduates with the disease and the work of eradication, the Bureau has offered employment to third-year veterinary students as assistants to regularly employed Bureau veterinarians, during summer vacations. When reactors are collected for slaughter near a veterinary college, they will, if possible, be held for a retest by senior students. Postmortem examination of reactors will be made available for observation and study by senior students where practicable. An alternative is to channel reactors through college clinics.

The no-visible-lesion reactors, perhaps the foremost obstacle to final eradication of the disease, are receiving constant study, as is the cervical site of injection, which helps in the solution of the problem. Tuberculosis eradication began with the cervical injection and may end with it.

● TUBERCULOSIS ERADICATION PROBLEMS

Notes from an address by J. Traum, D.V.M., Department of Veterinary Science, University of California, Berkeley, Calif.

The two most difficult problems delaying tuberculosis eradication at the present stage of that project are, (1) the no-visible-lesion reactor and (2) the sudden appearance of extensive infection in herds in some areas. These problems are well known. They have received extended discussion at every meeting of this association for the past five years. It is not necessary, perhaps not possible, to say anything new on the subject, but your program committee and many of the rest of us think it is well worthwhile to repeat some of what has already been said on the subject.

Both problems stem from complacency and smugness. The frank discussion of the past five years has brought an improved attitude on the part of both cattle raisers and eradication forces. The severe criticism in the report of the Tuberculosis Committee of this association in 1946, under the chairmanship of Dean Hagan, was especially helpful. His criticism was so severe that the regulatory forces couldn't take it and the Executive Committee returned the report back to the Committee for dilution, before publication. However, the BAI mimeographed the original report and sent copies to all BAI employees engaged in the eradication project. There is good evidence that we have stopped patting ourselves on the back and are endeavoring to get on with the job of bovine tuberculosis eradication, which was interrupted by the celebrations commemorating the placing of all territory in the United States in the modified accredited area. While the percentage of reactors found in retesting during the past year remained the same as for the preceding year and by that yardstick no progress was made, that percentage has stood at less than 0.2% for two years. This record of the findings on tuberculin testing is fully supported by the postmortem records of the meat inspection service. No other important cattle country even approaches this condition.

Great effort is being made to orient young

veterinarians now entering the eradication forces. For obvious reasons these men have not had the experience with the disease that their predecessors had, when they entered upon this work 15 to 30 years ago. The no-visible-lesion reactor is receiving intensive study by research workers. Reports by Moore and Zeissig of what they are doing about it in New York are very helpful and indicative of material progress in its solution. Areas on the skin of cattle of differing sensitivity to tuberculin, delineated by Johnson, give us one more method of increasing the selectivity of tuberculin.

Zeissig has stated there are three factors that play a part in the tuberculin test—the man, the tuberculin and the cow. It will be noted in the foregoing that something is being done about each of these three factors. Except by gross carelessness or utter neglect, which fortunately has happened but rarely, the veterinarian making the test has the least effect upon the resulting reaction. The tuberculin, as has been stated, is receiving constant study at Beltsville by chemists, biochemists, physicists and specialists in the field of allergy. The third and most uncontrollable factor in the test—the cow, has been brought under better control by Johnson's work on skin sensitivity. Everyone realizes that with better tools we could do a quicker job of TB eradication. We are getting better tools.

● PRESENT TUBERCULOSIS PROBLEM NOT SOLVED

Notes from a discussion of problem herds in tuberculosis eradication, by H. R. Smith, General Manager of the U. S. Livestock Loss Prevention Board, Chicago, Ill.

The overall result in bovine tuberculosis eradication to date is remarkable, but we are not solving our present problem; that of eliminating the residual infection in our herds. The number of carcasses of beef retained for tuberculosis has been reduced 98.6% by the eradication program. Even including reactors slaughtered, the retentions are down 97%. That is a remarkable achievement. However, the percentage of reactors found on testing has not decreased during the past two years. It has been static at 0.19% during the fiscal years of 1948 and 1949. That is approximately the point at which the reduction ceased before the war interfered with the work and permitted a rise in the percentage of reactors.

It is possible we have reached an irreducible minimum in the eradication with our present methods. I think such is not the case but it is possible.

It seems important that when infection is found in a herd that retests be made within 30 days until no reactors are detected in such herds. I have in mind one herd of 65 dairy cows in which one reactor was found on a routine test. On a retest six months later, 30 animals reacted positively. Six months later one reacted and in the next three retests 20 more cows were taken out of the herd for a total of 51 of a value of about $15,000. Retests at 30-day intervals might have avoided a good deal of that loss. Many similar instances could be cited.

The number of swine carcasses retained by meat inspectors has shown a gratifying reduction. As a result of the disposition of hens at the close of the first laying season the number of swine carcasses retained for avian tuberculosis infection is declining rapidly.

It is possible that not enough attention is being given to infection of our herds by human type of the tubercle bacillus. Perhaps means to prevent dairy cows from being infected by their caretakers will have to be instituted to complete eradication of all tuberculosis from our herds.

● TUBERCULOSIS REACCREDITATION SHOULD BE SUBORDINATED TO ERADICATION

Notes from the report of the Committee on Tuberculosis, by Ralph L. West, D.V.M. State Veterinarian, St. Paul, Minn., Chairman.

Bovine tuberculosis still exists in the United States in isolated centers. It is incorrect to speak of it as eradicated. It does not exist in an amount to constitute a hazard to the public health, but it constitutes a threat to the herds and communities where infection persists.

The livestock industry is far too complacent about the tuberculosis situation. It centers entirely too much attention on reaccreditation. Making certain that an area is in fact entitled to reaccreditation is far more important. Several changes should be made in the uniform regulations. It may be that the time has arrived to raise the standard for accredited areas and require that infection shall be reduced possibly to 0.25% instead of 0.5%. That might bring livestock owners back to the matter of getting rid of disease, instead of centering their efforts on staying on an accredited list arbitrarily established. Eradication not reaccredita-

tion is the important thing. That fact should be hammered home on all occasions.

In the various plans being evolved for solving the no-visible-lesion reactor problem we must not lose sight of or temporize with one basic fact. Every NVL reactor is a suspect and must be so treated until condemned or

The intradermal tuberculin test has made possible the present low incidence of tuberculosis infection in our cattle herds.

cleared. Zeissig has shown that most noninfected NVL reactors are temporary reactors only and will fail to react 30 or 60 days later. Surely the importance of being sure justifies holding NVL reactors in quarantine for that period and retesting them.

● THE COMPLEMENT-FIXATION TEST FOR ANAPLASMOSIS

Notes from a discussion by D. W. Gates, D.V.M., M.S. and Wm. M. Mohler, D.V.M., Pathological Division, Bureau of Animal Industry, USDA, Washington, D. C. and L. J. Poelma, D.V.M. and J. W. Hastings, V.M.D., Maryland Livestock Sanitary Commission, Bethesda, Md.

The usual method of testing suspected carriers for anaplasmosis has been injection of blood from the suspect into a splenectomized calf. This, of course, is an expensive test and time consuming. In the April 1949 issue of VETERINARY MEDICINE, Mohler and Eichhorn described a serum complement-fixation test for detecting anaplasmosis carriers. The preparation of the antigen for this test was described by Mott and Gates in the July 1949 issue of VETERINARY MEDICINE. This communication was a report of a field trial of this complement-fixation test in 557 herds. Of these herds ten had a history of acute anaplasmosis and it was suspected that carrier cattle remained in them.

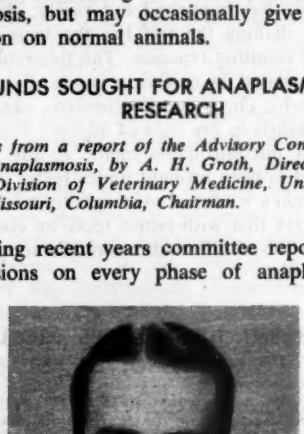
In the 197 cattle in these ten herds there were 57 positive, 20 suspect and 119 negative reactions. Nine animals which reacted positively were selected at random and 10 cc. of the blood of each injected into a splenectomized calf, about 16 months of age. Of the nine inoculated calves, seven (78%) developed acute anaplasmosis. Of five suspect reactors from which blood was tested by inoculation, one case of acute anaplasmosis (20%) resulted. The blood of none of the ten negative reactors, which were checked by the inoculation test, caused anaplasmosis.

The result of this experiment clearly indicates that the complement-fixation test is capable of detecting the carrier state of anaplasmosis, but may occasionally give a false reaction on normal animals.

● FUNDS SOUGHT FOR ANAPLASMOSIS RESEARCH

Notes from a report of the Advisory Committee on Anaplasmosis, by A. H. Groth, Director of the Division of Veterinary Medicine, University of Missouri, Columbia, Chairman.

During recent years committee reports and discussions on every phase of anaplasmosis



Dr. A. H. Groth

have been presented at meetings of this association. The Committee has nothing to add to those discussions this year.

The annual cost of anaplasmosis is placed

at five to six million dollars. In investigational work in progress during the year, various therapeutic agents were tried as a means of curing the carrier of anaplasmosis but none was found that is satisfactory.

A good deal of the disease is due to metalic vectors—hypodermic needles, knives, dehorning saws, nose rings, etc. More stress on an educational program to prevent this source of infection might be profitable.

The use of insecticides to prevent attacks of biting flies was investigated during the year. It was developed that spraying infected animals with a 2% solution of DDT will not repel biting flies, nor prevent them from biting but results in their death later.

A report of research on the successful use of the complement-fixation test, for the detection of carriers was published during the year, (*Vet. Med.* 44:155 (April), 1949) and will be summarized at this meeting.

The Committee recommends that additional funds be made available for research on anaplasmosis. During the year it has centered most of its efforts on the procurement of such funds.

● THE BRUCELLOSIS PROJECT

Notes on a report by A. K. Kuttler, D.V.S., Chief of the Tuberculosis Eradication Division, Bureau of Animal Industry, USDA, Washington, D. C.

The number of cattle tested for brucellosis during the past year was 5,671,347, an increase of 236,555 or 4% over the number tested in the preceding year. The reactors numbered 226,691 or 4%. The proportion of reactors the preceding year was 4.3%. In 1941 it was 2.4%. The calves vaccinated in the fiscal year 1949 numbered 1,573,128, an increase of 413,801 or 35% over 1948.

During the year several states took steps to eliminate indemnity payments for reactors to the brucellosis test and will utilize the funds thus saved for calf vaccination.

Various district and other brucellosis meetings were held during the year and resulted in greater unity of purpose among the groups represented.

During the year, further study was given the A.B.R. or ring test for brucellosis. This resulted in some encouragement. If proved sufficiently accurate this test will aid greatly in solving the man-power shortage in the Division and speed the work materially.

● EXPERIENCES WITH BRUCELLA (M) VACCINE

Notes from a discussion by B. J. Killham, D.V.M., G. W. Reed, D.V.M., and C. F. Clark, D.V.M., Michigan State College, East Lansing, Mich.

Brucella (M) vaccine was not available for general use in Michigan until November 1947. Obviously, not sufficient time has elapsed to make a complete survey but an attempt was made to determine the brucellosis status of the average farm herd before and after vaccination with Brucella (M) vaccine.

A record of 117 herds containing 2,402 cattle revealed 16.52% reactors and 11.86% suspects at the time of vaccination and 3.60% reactors and 4.49% suspects nine to 16 months later. It is thought this percentage of post-vaccination reactors was probably infected at the time of vaccination. The reactors on the first test were not included in the second test.

A survey was made in a similar county in which, for comparison, area testing had been done with strain 19. In this county the reactors numbered 13.59% and the suspects 10.01%. On the post-vaccination test, not including the reactors at the first test, the results were reactors 7.07% and suspects 10.39%, approximately twice as high as in the Brucella (M) group, notwithstanding that on the initial test the rate of infection was considerably lower in this county.

No conclusions are drawn from this survey because of the short period covered. Subsequent reports on these herds will be made.

● OBSERVATIONS ON THE USE OF BRUCELLA (M) VACCINE

Notes from a discussion by C. F. Clark, D.V.M., Michigan State College, East Lansing, Michigan, and Letha Phelps, Department of Agriculture, Lansing, Mich.

Brucella (M) vaccine, developed by Dr. I. Forest Huddleson, Michigan State College, became available for use by Michigan veterinarians who were approved by the state department of agriculture, November 1, 1947.

As of October 1, 1949, 278 practitioners had been approved for the use of Brucella (M) vaccine, 4,122 herd owners had signed agreements as to its use, and the vaccination of 64,404 cattle had been reported. It is required of the veterinarian and the owner that a blood test of all shall be made within a period of 30 days before vaccination and that both the

test results and the vaccination be reported to the state department of agriculture (state veterinarian). It is recommended that a post-vaccination test of the herd be made following vaccination, but since the owner pays for this work this latter cannot well be insisted upon and is often neglected.

A study of the results of Brucella (M) vaccination to date, was made for the purpose of finding the answer to two questions, *viz.*:

1. Does Brucella (M) vaccine produce blood agglutination reactions in cattle?

2. Does Brucella (M) vaccine have significant therapeutic value?

Because of the magnitude of the task the study was limited to three counties in which 338 herds were vaccinated.

At the time of the study, reports of post-vaccination blood tests had been received from only 151 of these herds and the remaining 187 herds were eliminated from the study.

All female animals in the noninfected herds and all negative females in the infected herds were vaccinated.

Of the 151 herds contained in the study, 126 or 83.44% were infected when vaccinated.

The conclusions reached were:

1. Brucella (M) vaccine does not produce persistent blood reactions in cattle.

2. Brucella (M) vaccine does not have significant therapeutic value.

An incidental conclusion from the tables presented is that Brucella (M) vaccine had a high protective value over the period shown in the tables, *i.e.*, the spread of the disease in infected herds and new reactors (except for such reactions as might reasonably be expected to develop in recently infected cattle in infected herds) was apparently suppressed in all infected herds and none of the noninfected herds, at the time of vaccination, became infected subsequently.

● CONTROLLED EXPERIMENT WITH BRUCELLA (M) VACCINE

Notes from a progress report on the use of Brucella (M) vaccine under controlled experimental conditions, by Bruce H. Edington, D.V.M., Wooster, O.

This experiment, begun just over one year ago, was initiated through the Bureau of Animal Industry. Dr. I. Forest Huddleson, East Lansing, Michigan, agreed to supply the vaccine as needed. It is obvious definite conclusions cannot be drawn in an experiment of this kind after the short period of one year.

The cattle used in this experiment comprised three groups:

1. A laboratory group under our immediate supervision. All were negative to the agglutination test and protected from exposure to infection.

2. A group of public welfare herds; all negative.

3. A group of 16 privately owned herds. All herds in this group contained reactors which were retained in the herds. As many control animals were kept in the herds as it was possible to induce the owners to withhold from vaccination, but consent could be obtained for only about 10% of reactors in the 16 herds. Animals in the other herds were divided approximately equally among the strain-19-vaccinated, Brucella-(M)-vaccinated and nonvaccinated or controls.

At this time a report can be made only on the reactions induced and on prophylaxis.

In the first group, 15 animals were vaccinated with strain 19. The average agglutination titer reached 1:1800 in 23 days and receded to 1:500 in 164 days after vaccination.

Thirteen animals were vaccinated with Brucella (M) vaccine. The average agglutination titer rose to 1:100 and receded to 1:37 at the end of 72 days and to normal 164 days after vaccination.

The controls showed no reactions during the period.

Both young and adult animals were vaccinated among the foregoing animals.

In the second group calves between the ages of seven and 11 months only were vaccinated. In these the average titers rose and fell as follows:

Vaccine	7th day	21st day	58th day	181st day
S. 19	1:800	1:10,000	1:900	1:400
Br. (M)	1:12	1:125	negative	negative

Eighty-two animals in two of group 3 herds were vaccinated with strain 19. At the end of one year 75 were normal, one was a suspect, and six were reactors; 59 had calved normally and three of the six reactors had aborted. A similar number vaccinated with Brucella (M) vaccine were negative at the end of one year

● CONTROL OF BRUCELLOSIS IN A RANGE HERD

Notes from an address by Mr. Herman Oliver, John Day, Oregon.

This was an interesting paper dealing, in the main, with the production of beef cattle

on the range. This explanation was given so the audience might have some appreciation of the difficulties of handling cattle for frequent testing on the open range and of the sanitary problem where, in the wintertime, large numbers of animals are collected in restricted areas, with only windbreaks for shelter and fed upon the ground, with the feed grossly contaminated by constant trampling.

Before undertaking control of it, brucellosis was his most costly disease and responsible for the loss of 10 to 15% of the calf crop annually. The test and slaughter plan of control was adopted and prosecuted vigorously for five years. The plan involved a great deal of work and much expense, aside from the loss of reacting animals, for labor, feed racks which were built and control of the herd on the range. Nevertheless, the herd mixed with infected herds. In the fourth year of testing and slaughtering, calf vaccination was adopted. The effectiveness of vaccination was checked by the test of the first 200 heifers vaccinated shortly after they calved, *i.e.*, when they were about 30 months of age. The test revealed no positive reactors and but one suspect in the lot.

At present the loss from brucellosis is nil or practically nil. The calving percentage has increased from 80 to 96% with 85% of the crop dropped in the first 60 days of the calving season which begins about February 18. All heifer calves are vaccinated between the ages of four and eight months; all additions to the herd from other herds are either of vaccinated animals or tested animals; there is conscientious observance of good sanitation and ample feed of good quality provided for the herd. The owner regards good feed and care as being of importance in the prevention of disease.

● INACTIVATED BRUCELLA AS AN IMMUNIZING AGENT

Notes from a discussion by A. S. Schlingman, D.V.M. and Mary C. Manning, Research Laboratories, Parke, Davis & Co., Detroit, Mich.

Studies on the immunization of cattle against brucellosis have been almost continuous since shortly after the discovery of the organism. Cultures killed by heat and with chemicals have been tried extensively without satisfactory results and reliance has come to be placed solely on a vaccine comprising living organisms, which possesses some disadvantages.

Success in inactivating a considerable number of bacteria and a few viruses with ultraviolet light without destroying their antigenic properties justified a trial of this method with Brucella. It was demonstrated that these organisms can be inactivated readily in this manner and a vaccine so made possesses considerable

Collecting blood sample for the standard serum agglutination test for brucellosis; the backbone of control measures.

immunizing capacity for laboratory animals. This immunizing effect seemed to be much enhanced by precipitation with potassium alum.

When used on cattle the vaccine was without harmful effect and produced a long lasting reaction in a high titer to the agglutination test. Careful observation of its use in cattle failed to demonstrate an appreciable immunity attributable to the vaccination. Research on the development of a vaccine by inactivating the organisms with ultraviolet light will be continued.

● THE NATIONAL BRUCELLOSIS COMMITTEE

Notes from an address by Mr. W. D. Knox, editor, Hoard's Dairyman, Fort Atkinson, Wis.

In 1947 brucellosis control was in a bad way. The incidence of the disease had doubled in six years. The livestock industry was confused by widely differing plans of control in different states, divergent interstate shipment regulations and unrealistic regulations. The brucellosis control and eradication project was in serious jeopardy for lack of producer support. There was much disagreement among veterinarians as to what constituted proper control measures.

At the December 1947 meeting of this association, the brucellosis committee recom-

mended a joint committee be appointed by the president of the Association and the Chief of the Bureau of Animal Industry, USDA, to prepare "a statement of known facts" about brucellosis.

At the 1948 Midwest Brucellosis Conference held in Chicago in June, the formation of an independent organization to guide and promote brucellosis eradication was unanimously recommended. The Chief of the Bureau was requested to convene the organizing meeting.

The Northeastern States Brucellosis Conference, held in New York City in January 1949 endorsed the Midwest recommendation. The Chief of the Bureau called the meeting for March 15, 1949 and invited all interested groups to send representatives. From this meeting the National Brucellosis Committee eventually developed at a meeting held in Chicago, May 10, 1949. It comprises representatives of 20 groups interested in brucellosis eradication—practically all such groups but the taxpayers. Mr. Clinton K. Tomson, representative of the National Beef Breeds Association was elected chairman.

It was decided the Committee should have a whole-time secretary and a headquarters office, and that for this and other activities it should have an income of $40,000. a year. A committee on finance has been appointed to raise this sum.

An extensive program of activities for this committee has been agreed upon. It is predicted that it will be an extremely important factor in guiding and promoting brucellosis eradication in the United States.

● DIFFERING CONTROLS FOR SWINE AND CATTLE BRUCELLOSIS

Notes from an address by L. M. Hutchings, B. S., D.V.M., M.S., Ph.D., Purdue Agricultural Experiment Station, Lafayette, Ind.

Swine brucellosis is often a serious economic problem to the swine owner and is always a potential public health problem. Swine may harbor all three species of Brucella; thus they constitute a natural reservoir of the organisms for both man and lower animals. It is not known how *Br. suis* infects cattle naturally, but intramammary injection of the organisms may result in infection. Since brucellosis is seldom transmitted from man to man, domestic animals are the chief source of human infection; consequently control of the disease in them becomes a problem of vital importance.

Brucellosis in cattle has proved to be a difficult disease to control, in large measure because of an unwillingness on the part of livestock sanitary authorities to recognize that different herds and different areas require a different approach. Fifteen years of stubborn attempt to do the job under hard and fast rules that disregard local factors, have underlined the futility of the plan. If the methods that have failed in bovine brucellosis, or successful methods that may be developed later are carted bodily over to swine brucellosis control, history will really and truly repeat itself.

At a recent meeting of research workers interested in swine brucellosis it was the consensus that sufficient is now known about swine brucellosis to justify an attempt to eradicate it from herds, when the owners request their local veterinarians to undertake the job.

Infectious disease control is accomplished by one or more of five fundamental procedures: (1) locate the infection, (2) remove it, (3) eliminate the susceptible host (immunization), (4) separate the host and the infection (isolation) and (5) therapy.

Four of these steps have been employed in bovine brucellosis control. Not all are applicable to swine brucellosis. Let us examine, one by one, these five fundamental steps as they apply in cattle and swine brucellosis.

1. Diagnosis: The standard serum agglutination test is the backbone of control measures in both species. In cattle the test is regarded as sufficiently accurate to warrant the disposal of individual animals on the basis of the test. In swine too many infected animals fail to react to permit such disposal and it is recommended chiefly as a herd test. The test and slaughter method of control on the basis of the test on individual swine is wholly inapplicable.

2. Elimination of the infection: In swine we have no accurate means of detecting the individual infected animal, hence this procedure is inapplicable as it is used in bovine brucellosis control.

3. Eliminate the susceptible host: Strain 19 is an important part of bovine brucellosis control, but no comparable immunizing agent has as yet been discovered for swine.

4. Isolation: This method has merit in bovine brucellosis, but is ordinarily impractical because of the expense for additional equipment and the long period of extra labor involved. By contrast with swine, in which the reproduction rate is rapid and the isolation period can be short, the method is feasible, practical, and successful.

5. Therapy: Although considerable progress

has been achieved in developing treatment for brucellosis in laboratory animals and in man, no practicable treatment for farm animals is known at the present time and prevention must be relied upon.

Thus although only fundamental procedure no. 4 and a limited use of no. 1 are applicable in the control of brucellosis in swine, the disease has been eradicated from many herds promptly and economically by the plans outlined by the committee on brucellosis of this association.*

● SWINE BRUCELLOSIS CONTROL

Notes from an advisory Committee on Swine Brucellosis Control, by L. M. Hutchings, B.S., D.V.M., M.S., Ph.D., Purdue University, Lafayette, Ind., Chairman.

In the spring of 1949, the Federal Bureau of Animal Industry sponsored a meeting to consider the progress in swine brucellosis control. At this meeting a committee was appointed to formulate a plan for the control of brucellosis in swine and present it to the U. S. Livestock Association for consideration.

Upon studying the matter the Committee found little recorded experience upon which to draw for information.

Brucella suis infection in man is only now being recognized as the most important occupational hazard of those who are compelled to come into close contact with swine or swine carcasses.

Matters complicating and making more difficult the control of swine brucellosis are, the community boar, the community auction sale, the custom of breeding sows to produce two litters per year, and assembling a herd from many sources.

Two plans, both of which have been used successfully to a limited extent, were formulated for the eradication of brucellosis from an infected herd of swine.

Plan 1.—Sell the entire herd for slaughter, clean and disinfect the premises. Restock with breeders from noninfected herds. For commercial herds this plan is not expensive except that it necessitates suspension of operation for a time. Difficulty is encountered in some sections in obtaining replacements from noninfected sources.

Plan 2.—(a) Test the whole herd. (b) At eight weeks of age wean and test the pigs of the negative sows. (c) Remove the negative pigs to new noncontaminated quarters, preferably a pasture. (d) Test the pigs at 60-day intervals, returning positive reactors to the infected herd. (e) Select and test the breeders at breeding time. (f) Return all others to the infected herd. (g) Sell the infected herd for slaughter as soon as there is an adequate number of breeders in the noninfected herd.

The BAI should prepare and supply the antigen.

Veterinary practitioners should be employed by the livestock sanitary authorities for this work.

*See also Field Control Experiments with Brucellosis in Swine, U.S.L.S.A. Fifty-First Annual Report, p. 124 (1947); Swine Brucellosis, U.S.L.S.A. Fifty-Second Annual Report, p. 140 (1948); *Vet. Med.*, 40:120 (April), 1945; 41:99 (March), 1946; 41:304 (Sept.), 1946; 42:294 (Aug.), 1947.

● RHEUMATOID DISEASE IN SWINE

Notes from an address by L. P. Doyle, B.S.A., M.S., D.V.M., Ph.D., Purdue University, Lafayette, Ind.

By rheumatoid disease in swine, Doctor Doyle refers to what is commonly called swine erysipelas. He regards rheumatoid disease as an appropriate name because of the similarity of the course, symptoms, lesions, and effects to rheumatoid or rheumatic disease in man. He questions the accuracy of what is taught about swine erysipelas because of the general agreement that it is extremely difficult or impossible to cause the disease by ordinary inoculation with *Erysipelothrix rhusiopathiae.*

Dr. L. P. Doyle

That general acceptance does not always signify accuracy of a theory, he supports by citing that for years human influenza was thought to be caused by the influenza bacillus, psittacosis was erroneously believed to be due to a Salmonella organism, progress toward an understanding of canine distemper was long retarded because a Pasteurella was believed to be the cause, and 20 years were required to

recover from the mistake of ascribing hog cholera to the *Salmonella choleraesuis*. He also mentioned that the role ascribed to streptococci in rheumatism in man is now questioned by many and wholly disbelieved by some of the ablest investigators of that disease.

If what is known as swine erysipelas be considered rheumatoid in nature, and complacency as to its cause be discarded, it might soon lead to important progress toward the solution of the problem of rheumatoid diseases, and perhaps, incalculable benefit to public health. Kobe in Germany (1943) and McNutt in this country have reported finding a virus in lesions commonly attributed to *E. rhusiopathiae* or associated with that organism.

● STATUS OF HOG CHOLERA VACCINE

Notes from a discussion by E. F. Sanders, D.V.M., A. H. Quin, D.V.M., and E. L. Mundell, D.V.M., Jensen-Salsbery Laboratories, Kansas City, Mo.

The authors recall that it has been slightly more than 40 years since Dorset reported the development of a prophylactic vaccine for hog cholera consisting of the fully virulent virus and an antiserum; yet the annual cost of hog cholera in the United States, including the cost of vaccination, is 20 to 30 million dollars. This they blame mainly upon the misuse of the virus of which 91,094,825 cc. were distributed last year, much of it to users other than veterinarians, who employ it in most states without any supervision by livestock sanitary authorities. The inevitable result of such use (or misuse) of the virus is the establishment of a vast number of centers of hog cholera infection every year. Centers, which in the long term, balance the control effected by the proper use of the vaccine, so that over a 20-year period the cost of hog cholera to the swine industry has not varied greatly from 50 cents per hog marketed. By contrast, the cost of this disease to the swine industry of Canada where the use of virus has always been prohibited, is practically nil.

The hazards inseparable from the use of virulent virus have been a powerful stimulant to the development of a safer prophylactic agent. Dorset in the early 30's launched intensive research on the problem and in 1935 announced the production of a successful vaccine from infective blood in which the virus was inactivated by crystal violet dye. Even earlier (1933) Dr. W. H. Boynton, of the University of California, announced a successful tissue vaccine in which the virus was inactivated by eucalyptol. The production of a third vaccine composed of tissue in which the virus is inactivated by crystal violet has since been licensed. These viruses retain their immunization properties for a long period. They may be stored for a year and then used successfully.

These questions naturally arise. (1) Are the vaccines safe? (2) Are they effective? The answer is in the affirmative in both cases. The tests to which they are subjected under the supervision of Bureau veterinarians are both comprehensive and rigorous. Observation of the authors on mass field usage, and the reports of many other investigators, is that swine given hog cholera vaccine withstand field exposure to the disease fully comparable to swine vaccinated with virus and antiserum. To be successfully immunized with either product the animal should be healthy, gaining in weight and without previous exposure to cholera.

There has been a rapid growth in the use of hog cholera vaccines. In 1941 the production was 422,927 doses; in 1948 it was 2,028,268 doses.

The consensus has been that it requires three weeks for the animal to develop maximum immunity following injection of hog cholera vaccine. In the authors' opinion some degree of protection is established in seven days and probably adequate protection to withstand field exposure in 14 days.

The vaccines should not be given simultaneously with hog cholera antiserum, nor should they be given to swine of which the history of exposure to cholera is unknown, such as pigs fed unsterilized garbage, pigs passing through community sales, pigs in transit of which the history is unknown, and of course pigs known to have been exposed to hog cholera.

It has been 15 years since hog cholera vaccines were developed and nine years since distribution of them was licensed. Millions of doses are used annually, yet a majority of the states have not changed their regulations to recognize the use of the vaccines for swine exhibited at fairs, sold at community sales or shipped interstate. It is reminiscent of the delay of many states in recognizing the intradermal tuberculin test and the plate agglutination test for brucellosis.

It was recommended that the U. S. Livestock Sanitary Association bring the need for revising their regulations to the proper authorities in the procrastinating states.

● INFECTIOUS DISEASES OF SWINE

Notes from a report of the Committee on Transmissible Diseases of Swine, by J. D. Ray, B. S., D.V.S., Corn States Serum Company, Omaha, Nebr., Chairman.

After decreasing for five years, in pretty much every region of the United States, there was an increase, during the past year, in the prevalence of hog cholera in several states west of the Mississippi River. The disease remains the greatest hazard of the swine industry.

In the principal swine-producing areas from 50 to 75% of the pigs are vaccinated routinely. Where swine raising is less intensive the percentage vaccinated averages much less. Over the whole country about 45% of the swine crop is routinely vaccinated. The simultaneous serum-virus method is employed in 95 to 96% of swine vaccination.

In states where there was an increase in hog cholera, there was an even greater increase in post-vaccination disasters during the past year. So prevalent were ailments following vaccination that some veterinarians concluded an unrecognized disease entity must be responsible. Extended investigation, however, failed to reveal any cause for the losses other than the vaccination of pigs that were not in proper condition to be vaccinated.

Year by year swine erysipelas becomes more widely distributed. In some areas, it has become the most destructive disease of swine.

Infectious gastroenteritis caused the loss of many young pigs in certain areas, during the spring farrowing season. Infectious enteritis due to Salmonella was less prevalent during the past year than heretofore.

Respiratory diseases were more prevalent and more severe in 1949 in some areas than during recent years. Pasteurella organisms were found in such cases frequently. In lung cultures Hemophilus predominated.

Atrophic rhinitis is spreading.

In pigs one to four weeks of age, arthritis associated with streptococcic infection of the structures and frequently of the navel scar, is increasing in prevalence.

Research on transmissible diseases of swine has lagged. This committee feels the Association should urge increased research in this field.

● DISEASE CONTROL IN POULTRY HATCHERIES

Notes from an address by Mr. George Berry, Berry Brothers' Hatcheries, Quincy, Ill.

Ten years ago the value of poultry and egg production in the United States was a billion dollars a year; today it totals three billion dollars. A few years ago it was estimated that disease cost the poultry industry 100 million dollars, today the cost is conservatively placed in excess of 300 million dollars. Everyone in the poultry hatchery business has fought disease and lived with it as long as he has been in the business.

The speaker was born and raised on a large poultry and hatchery farm which produced 30,000 to 50,000 purebred chickens yearly and sold breeding stock all over the United States. In the winter of 1919-20, during high school days he spent his Saturdays and evenings treating sick chickens for a respiratory disease that killed more than 10,000 mature birds. This experience convinced him that treating sick chickens is futile drudgery and the best remedy for them is the axe. In the first year that he operated a hatchery alone (1924-25) he suffered the trials, tribulations, quarantines, and supervision incident to the outbreak of European fowl pest.

Disease is a constant threat to the poultry and hatchery business. The concentration of millions of birds in a small area gives disease an opportunity for spread and destruction unknown in any other species of farm animal. In the speaker's hatchery at Quincy, Illinois, *e.g.*, 1,250,000 eggs are set every three weeks and more than 200,000 starter chicks in brooders are constantly on hand, all within a block of the largest department store in the city and next door to the five-story Masonic temple. In other states he operates poultry plants spread over ten and even 20 acres, but disease seems to strike the concentrated and the scattered plants impartially. Hatcheries often have been accused of spreading poultry disease, but it is extremely difficult to believe that any hatchery operator, who expects to stay in the business, knowingly sends out sick chicks. The manner in which poultry diseases are spread, with the great rapidity one may witness any season, is an unanswered question. Is it by feed sacks, especially the reused ones? Is it by egg cases? By eggs? By chicks shipped by mail order hatcheries? Are poultry diseases air borne? Maybe all these factors play a part, and perhaps a lot of disease is due to infection picked up by healthy birds in filthy express and mail cars, and in trucks in which sick birds have been shipped.

The speaker thinks many and stricter sanitary laws are needed to regulate the hatchery industry and make the "in and outers" and the small "family hatcheries" behave. He thinks the post office should handle only healthy day-

old chicks and that common carriers should be required to clean and disinfect their vehicles after each shipment of live poultry. He believes that "barrier laws", which under the guise of sanitary laws, a good many states employ to give local hatcheries a monopoly, hinder free enterprise and harm the poultry industry even in the states that have barrier laws. He believes the National Poultry Improvement Plan should adopt much stricter rules for pullorum disease control; particularly, no hatcheryman should be licensed to do the work on his own flock and, in general, better qualified personnel should be employed.

Infectious diseases in flocks and herds are the limiting factor in profitable production of meat foods.

In the past year the speaker used more than 400,000 doses of live virus and more than 600,000 doses of killed virus avian pneumoencephalitis vaccine. He thinks the present pneumoencephalitis situation, with some states and colleges advocating vaccination and others restricting or prohibiting it, is an unhappy one. He knows of an instance where a state veterinarian, without seeing the flock, quarantined a poultry raiser's farm more than a year ago and, so far as the owner knows, the farm is still quarantined although there hasn't been a chicken on it in eight months.

The poultry industry has received a lot of bad publicity over avian pneumoencephalitis and other poultry disease by irresponsible writers.

Poultry disease problems will be solved only by sound thinking and practical planning. The poultry industry is undergoing a revolution by which the farm and backyard flock is being replaced as a market factor by vast commercial poultry farms and enormous broiler and fryer producing plants. These changes at once simplify disease control and intensify disease. The industry greatly needs more and better veterinary service and more attention from livestock sanitary authorities.

● NEWLY DISCOVERED RESPIRATORY DISEASE OF BIRDS

Notes from a discussion by John F. Delaplane, D.V.M., Rhode Island Agricultural Experiment Station, Kingston, R. I.

There is a virus type disease of poultry in the New England states, other than those heretofore described. Clinically it cannot be differentiated from laryngotracheitis, infectious bronchitis or avian pneumoencephalitis. Economically it is more important than the latter since, although the mortality is unimportant, it lowers production for four or five weeks. It is chronic, spreads slowly, and persists in a flock for months. Only mature birds are affected and turkeys are more susceptible than chickens. A natural outbreak in a flock of turkeys lasted seven months and caused sinusitis. The virus stored for 18 months at 17.6 C. was still viable.

It is thought to be not of common occurrence, but it is believed to be responsible for apparent failure to immunize flocks against pneumoencephalitis and infectious bronchitis.

● TRANSMISSIBLE DISEASES OF POULTRY

Notes from a report of the Committee on Transmissible Diseases of Poultry, by T. C. Byerly, D.V.M., Bureau of Animal Industry, Washington, D. C., Chairman.

There is much poultry disease in the country but the industry is enthusiastic about the control of it. The pullorum disease control project has achieved brilliant results, but the problem is not yet solved. Research at present is concerned chiefly with the development of antigens and the sensitivity of strains.

Fowl typhoid is a costly disease which occasions losses sometimes as high as 59% of the flock.

Hexamitiasis is still taking a toll from turkey raisers.

Fowl paralysis is responsible for a loss of 60 million dollars annually. It is the most costly of poultry diseases and is controlled effectively only by selective breeding.

Avian pneumoencephalitis is widespread in this country. The mortality varies from very low to 80%. Egg production is nearly always reduced, varying from a minor degree to complete suppression. The indications are that the disease is transmitted through the egg but the evidence is not conclusive. Killed virus vaccine helps but does not solve the problem of control. Live virus vaccine reduces egg production markedly in laying birds. It spreads the disease and can kill birds.

● AVIAN LYMPHOMATOSIS EGG-BORNE

Notes from an address by G. E. Cottral, D.V.M., U. S. Regional Poultry Research Laboratory, East Lansing, Mich.

That infectious agents can be transmitted from mother to offspring through the egg has been known since Pasteur demonstrated pébrine, a protozoan disease of silkworms, to be transmitted in that fashion. That was in 1867, but it was not formally published until 1870. The concept of egg transmission antedated Pasteur but he was the first to prove it.

The next important demonstration of egg-borne transmission of disease organisms was by Kilborne, Smith and Curtis in 1893—the role of the tick, *Margaropus annulatus*, in so transmitting the *Babesia bigemina* (tick fever) in cattle. There followed demonstrations of analogous transmission of Rocky Mountain spotted fever, phlebotonus fever, boutonneuse fever, scrub typhus, and Colorado tick fever in man, St. Louis encephalitis, and fowl spirochetosis in chickens, and equine encephalomyelitis in horses, all by arthropod vectors.

In birds, a number of diseases are known, or on predominant evidence believed, to be transmitted direct from the hen to her offspring through the egg. These include pullorum disease where the fact is established, and fowl typhoid, paratyphoid infections, psittacosis,

The mortality in young herds to pneumoencephalitis may vary from very low to 80% of the infected flock.

tuberculosis, infectious sinusitis, and avian pneumoencephalitis where the proof cannot be said to be definite as yet.

To this list Cottral adds lymphomatosis, based upon the work of various research workers embodying, (1) epidemiology observations, (2) flock isolation studies, (3) family isolation studies, (4) incubator exposure studies, (5) histological studies, and (6) transmission studies, all of which he described.

● INTESTINAL PROTOZOA OF TURKEYS

Notes from an address by Philip A. Hawkins, M.S., D.V.M., Michigan State College, East Lansing, Mich.

Trichomoniasis.—The only trichomonad definitely known to be pathogenic for turkeys is the *Trichomonas gallinae*. It occurs in the mouth, pharynx, esophagus and crop. It is a serious infection, but so rare in turkeys that it is unimportant economically at the present time.

Hexamitiasis.—This infection of turkeys occurs over most of the United States, but all or nearly all of the serious outbreaks have been reported from California.

Histomiasis.—Although practical means of preventing infectious enterohepatitis or blackhead in turkeys are known, this disease continues to constitute a serious problem for many turkey raisers.

Connell recently reported observing small oval bodies in the eggs of *Heterakis gallinae,* which he believes to be the infective form of *Histomonas meleagridis.* If this is confirmed it is the first observation of the infective stage of this protozoon and confirms the circumstantial evidence, which has long existed, that the cecal worm transmits the histomonad.

No successful treatment for histomoniasis is known. All the newer sulfonamides and the most promising of the antibiotic agents have been tried and all have failed to benefit the infected bird.

Coccidiosis.—In turkeys, coccidiosis has usually been regarded as unimportant, however in poults this infection may be extremely serious.

Eimeria meleagrimitis, E. meleagridis and a third, probably *E. dispersa,* infect turkeys. Of the three, the first, which inhabits the small intestine, is the most pathogenic. The *E. meleagridis* inhabits the large intestine and only rarely causes severe illness. The *E. dispersa* is relatively nonpathogenic, although experimental infections may be established.

● COLLECTION OF ANIMAL DISEASE STATISTICS

Notes from an address by Martin D. Baum, D.V.M., M.P.H., Colorado State Department of Public Health, Denver, Colo.

When the Colorado Department of Public Health created a Veterinary Section in its Division of Preventive Medical Services (Sept. 1, 1947), it was assigned the task of studying the diseases of animals transmitted to the human population, recommending and administering control measures, making epidemiological investigations, and serving in an advisory staff capacity.

The Department had no record of what animal diseases were indigenous to the state nor the faintest idea of the incidence or location of such diseases. It was evident no progress could be made without this information and plans for obtaining it were inaugurated. The Board of Health promulgated a regulation making six animal diseases reportable—anthrax, glanders, equine encephalomyelitis, leptospirosis, swine erysipelas and rabies. Brucellosis and tuberculosis were omitted from the list because information as to them is available elsewhere; glanders was included because such is a statutory requirement. Printed post cards with franking privilege were sent to each veterinarian in the state with full instructions for use. It was requested that diseases be reported as diagnosed, giving the name of the disease, name and address of the owner, human contacts, city and county of occurrence, and name and address of the veterinarian reporting.

As there was no means of checking to ascertain if the veterinarians of the state were complying with the mandate of the State Board of Health, success or failure of the program depended entirely upon the voluntary cooperation of the practitioners in the field. The results left a good deal to be desired. Visits made to local veterinary organizations to explain the need and objectives of the program and the important role of the practitioner were met with complacency or a charge that it was "socialized veterinary medicine". It is difficult to correlate such charges with the fact that physicians routinely report a far greater number of diseases although no group has more vigorously opposed "socializing" medicine.

There are a number of reasons why cooperation of veterinary practitioners in reporting disease is not more readily obtained and more general. Among them are, (1) lack of a uniform disease nomenclature, (2) an understandable reluctance to divulge the presence of disease among a client's animals, (3) the fear of diagnostic scrutiny, and (4) indifference to the general welfare. Most of this lack of cooperation derives from a lack of understanding of the functions and operation of a public health service.

However, it is pleasant to recall that the alertness, willingness to cooperate, and accuracy of a good many practitioners was indeed gratifying.

● ANIMAL COMMUNICABLE DISEASE REPORTING

Notes from an address by L. E. Starr, D.V.M., M. Sc., Ph.D., Public Health Veterinarian in the Division of Epidemiology, State Department of Public Health, Atlanta, Ga.

Prior to 1945, the committee on Transmissible Diseases of the U.S.L.S.A. reported on the

geographical occurrence of some 15 to 20 animal diseases. The report was largely a very brief summary of the annual reports of the Bureau of Animal Industry, USDA. In 1945 the chairman, Dr. C. R. Schroeder, devoted nearly all the report to detailing the need for some system by which animal morbidity and mortality statistics could be assembled. He has continued to stress this subject at all subsequent meetings of this association. At about that time or a little earlier the National Research Council and the A.V.M.A. evinced an interest in animal disease reporting and the former, in cooperation with other interested agencies, established an experimental reporting system in Iowa.

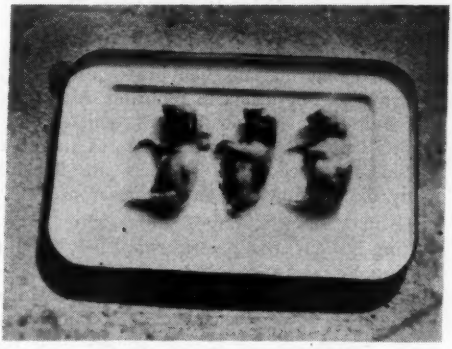
The medical profession has a well organized reporting system for collecting vital statistics that functions effectively. The reports are made by medical practitioners and channeled through the county and state public health systems to the U. S. Public Health Service. Physicians make these reports on 48 diseases routinely, almost as a matter of course, with no complaint, at least no public complaint, on the ground that the work is burdensome or they don't have time to fill out the blanks.

Information as to the location, prevalence, mortality, human contacts, etc. of certain animal diseases which are transmissible to man

Year by year swine erysipelas becomes more widely distributed. Illustrated are joint lesions of erysipelas.

is essential to the work of the Public Health Veterinarian in Georgia and, as there was no state-wide service to collect such information, an attempt was made to establish one, based, of course, upon reports by veterinary practitioners, the only group that possesses this information at first hand. Double perforated post cards were printed. One card contained on one side a series of questions to be answered by the veterinarian and the address of the state health department on the other side. The other card contained the address of the veterinarian. They were mailed to reach each veterinarian in the state on the first of each month. This reporting system was inaugurated January 1, 1946, and has been continued, with some modifications, to date. In the spring of 1948, because of the highly satisfactory response, the scope was enlarged to include eight additional diseases. This larger card was mailed in a franked envelope. It is now thought that use of the mailing frank was a mistake. It limits too strictly the kind of information that can be mailed.

The reports are not complete, from the standpoint of the individual animals involved



Aborted swine fetuses from which Brucella suis was isolated.

in any disease, but they enable us to determine the presence of any mass infection or any indication of a potential epidemic. Further, the information they contain is far more accurate than was available previously. For example, the State Department of Health reports each week to the U. S. Public Health Service in Washington, the number of cases of rabies in the state, based upon the number of heads examined in the Department laboratory and found positive for rabies. For January, February, March, and April, 1949, during which there was an epidemic of rabies in foxes in Crisp, Dooley, and Wilcox Counties, the laboratory reported rabies in 20 foxes, six dogs, five cattle, five cats, and one goat; a total of 37 cases. Reports from the veterinarians in the same three counties for the same period listed 160 cattle, ten mules, four sheep, four goats, and four dogs; a total of 182 animals. Since the veterinarians reported only cases they saw professionally, this number—182—represents only a part of the cases in farm animals and includes, in this instance, none of those in foxes.

Another example: None or few cases of equine encephalomyelitis had been reported

to the BAI from Georgia for a number of years. Although the virus was not isolated, the disease was thought to exist in the state because veterinarians were diagnosing it. A vial of a 50% glycerin solution and a vial of 10% formalin solution were sent to each veterinarian in nine counties with the request that they make autopsies of their cases of suspected encephalomyelitis that die and put a section of the brain in each vial and return to the health department with a sample of blood. These specimens as received, were sent to the Virus Research Laboratory at Montgomery, Alabama, for examination. The eastern type virus was isolated from 41 specimens that season.

Our experience since 1946 leads us to believe that veterinarians will prove just as cooperative as physicians in reporting morbidity and mortality statistics but, of course, their reports can never be as complete as those of physicians, since many animals are ill and many die unknown to any veterinarian.

To make a program of animal disease reporting by veterinarians effective, they should be supplied with something they need very much—more diagnostic laboratories to which they can send specimens, and there should be some means of getting the consolidated reports of animal mortality and morbidity statistics back to them promptly.

No new organizations nor departments of existing organizations are needed to collect and publish animal morbidity and mortality statistics. One or two more employees of state health departments or state livestock commissions may be required. One employee of the Bureau of Animal Industry could easily consolidate, summarize and publish the state reports. It would be necessary, of course, for the Congress to authorize the BAI to perform this function.

● ANIMAL MORBIDITY AND MORTALITY STATISTICS

Notes from the report of the Committee on Morbidity and Mortality, by C. R. Schroeder, Lederle Laboratories, Pearl River, N. Y., Chairman.

The availability of adequate morbidity and mortality statistics is fundamental to any successful disease control program, *i.e.*, in the case of an animal disease, it is necessary to know what it is, where it is, how much of it there is, and what it is doing in order to accomplish anything effective in its control.

For the past five years this committee has been energetically trying to bring about the collection and publication of animal morbidity and mortality statistics. Nobody opposes this move, everyone is for it (provided some one else does it), just as everyone is for mothers and the American home. It has become a contest between the enthusiasm of the chairman of the Committee and the inertia of the Association. So even is the contest, one can get even money on either young Mr. Enthusiasm or Old Man Inertia to outlast the other. To keep the matter in suspense even trial balloons end in a dead heat. The Iowa experiment in collecting animal vital statistics reported approximately equal advantages and disadvantages to the plan tested. At this meeting, Dr. L. E. Starr reported that the test run in Georgia revealed the collection of this information through the voluntary cooperation of veterinary practitioners in an eminently satisfactory and practicable method; Baum's trial balloon in Colorado was buffeted by many adverse winds. The contestants at this writing are still neck and neck.

The Committee reported that a manual on animal disease nomenclature is essential to successful reporting of morbidity and mortality. Apparently everyone agrees. The Committee regards a manual on standard methods of diagnosis as being equally indispensable. On this point, agreement is conspicuous by its small stature and lack of friends. Both manuals are now in preparation.

The Chief of the Bureau of Animal Industry has included a request in the Bureau's budget for 1951 for an appropriation to compile and distribute animal vital statistics. The budget must receive the approval of the Secretary of the USDA and favorable action by the Congress before the Bureau can function as a central clearing house for animal disease information. The Committee is urging all who are interested to write the Secretary recommending approval of the Bureau's request and when and if the budget request comes before the Congress, to urge its passage upon senators and members of the lower house. More than 400 individuals and organizations have already been approached by the Committee with a view to enlisting their support for this legislation when it reaches the Congress.

● THE VETERINARIAN IN PUBLIC HEALTH

Notes from an address by G. A. Edge, D.V.M., Department of Public Health, Toronto, Ont.

From the time of the earliest written records, codes designed to safeguard the well being of the people have contained injunctions con-

cerning the consumption of flesh. Among primitive peoples today, and as far back as tradition goes, there are endless taboos circumscribing the eating of meat. With the waning, about a century ago, of the conviction that disease was a dispensation from the gods for transgressions, it was inevitable that veterinarians should become interested in the animal-human disease problem.

Eighty years ago when the public health team as we know it was being formulated, it comprised a medical officer, a sanitary inspector, and a nurse. Other specialists have been added slowly, but until recently, organized public health bodies have looked upon the safeguarding of foods of animal origin as a function of agriculture which produces them.

There are in the United States more than 500 veterinarians employed full time by boards, departments or commissions of public health, yet the fact is, as a profession, we have been but half-hearted in the race for preferment in this service. In a number of respects, the duties which the veterinarian would naturally consider to be his, have been neglected altogether or allotted to the engineer or the sanitarian. In large measure the veterinary profession must determine where the veterinarian fits into the public health organization. Public health officials are now seriously considering including in their organizations the services of a public health veterinarian for each 50,000 to 75,000 population. This would require two to three thousand veterinarians. They are not now available. Graduate training is required for public health veterinarians just as it is for public health physicians and nurses. Whether or not veterinarians in sufficient numbers will qualify for this branch of the public service and are able to enter it at a desirable level of responsibility, opportunity, and remuneration, will depend in large measure upon the attitude of the profession at this time and in the near future. It is a challenge to the profession.

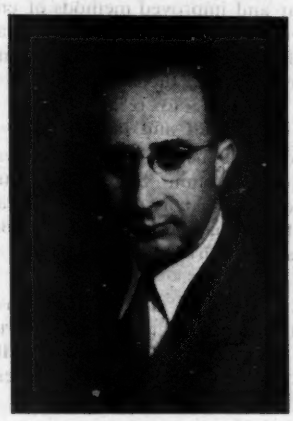
The veterinary colleges have a responsibility here. It is not to be expected they will qualify all graduates for public health work or give specialized training to undergraduate students, but they can give all graduates a broader appreciation of animal-human disease problems and food hygiene in relation to public health, a better knowledge of the relation of advances in chemistry to the general field of sanitation, and information as to the division of administrative authority at the federal,state, and municipal level. They can arouse the interest of the undergraduate student in public health and enable him to decide more intelligently whether to choose a career in public health or some other line of veterinary service.

It is clear that a good deal of long range planning, on the part of veterinary leaders, is required if this opportunity for a considerable portion of the profession is not to be lost by default. Should the next decade fail to see this accomplished our successors for many years will deplore our shortsightedness. "It is better to stumble forward with high hope than to ignominiously turn our backs."

● MEAT AND MILK INSPECTION

Notes from a report of the Committee on Meat and Milk Hygiene, by C. S. Bryan, D.V.M., Ph.D., Dean, School of Veterinary Medicine, Michigan State College, East Lansing, Chairman.

The food supply of a people has much to do with its health and happiness. It should of course be adequate, wholesome, safe and palatable. Some recent developments tend to



Dr. C. S. Bryan

increase the amount of uninspected meat consumed and of unsupervised slaughter. Reference is made to the growth of frozen locker plants and the countless country slaughter houses.

Only five states, California, Connecticut, Kansas, Massachusetts, and Washington, have state-wide meat inspection. California maintains state inspection in 271 plants. In California and Kansas, the cost of the inspection is born by the industry. In the other three states, the cost is paid by the state.

Meat inspection results in five general benefits—(1) a wholesome disease-free product, (2) information of infectious disease among animals, (3) a better market for livestock, (4)

improved methods of slaughter including the conservation of by-products, and (5) discouragement of cattle stealing.

Adequate laws and regulations are necessary to get the job done. The Michigan statewide milk inspection law of 1942 was a result of the combined efforts of the state department of health, the state department of agriculture, the state medical association, the state veterinary association, the state dairy association, the milk processing industries, and civic, business, women's and other organizations.

● PARASITIC DISEASES AND PARASITICIDES

Notes from a report of the Committee on Parasitic Diseases, by D. F. Eveleth, North Dakota Agricultural College, Fargo, Chairman.

The improvement of recent years in insecticides and parasiticides continued during the past year and improved methods of employing them were developed. This is important since although adult animals develop an immunity to some parasites, the main reliance for protection continues to reside in the effective use of insecticides and parasiticides.

These agents should be used always with care and discretion. Some work during the year indicates that as a group they are more harmful than has been thought. Serious losses that have occurred justify further toxicity studies.

Various of these new preparations are superior to the official arsenic dip but they cannot be adopted for official use until simple, fool-proof, dipside tests for their strength and toxicity are developed.

Use of the pure gamma isomer (gammexane) of benzene hexachloride is increasing for various purposes, but crude benzene hexachloride is adequate for most purposes. It constitutes a very superior dip for sheep scab and hog lice.

The use of rotenone for cattle grub infestation is increasing and proving highly satisfactory. Some practicable means of determining the nozzle pressure of the spray is needed when rotenone is applied. It is common for the operator of commercial spraying outfits to state the nozzle pressure is 300 or 500 pounds when neither he nor anyone else possesses the slightest information as to what the pressure actually is.

The daily administration of small amounts of phenothiazine in the feed is increasing in popularity as a means of protecting horses from strongyle infestation. (See *Vet Med.*, 44: 99 (March), 1949; 44:411 (Oct.), 1949; 44: 461 (Nov.), 1949.)

● COMMUNITY AUCTION MARKETS

Notes from an address by S. C. Sprunger, operator of the Kidron Auction Market, Kidron, O., and president of the Ohio Community Auctions Association.

The community auction or sale began in Ohio when, in 1917, seven farmers and three business men of Kidron, Ohio, formed an auction sale organization on the Swiss system. The main object of the organization was to give the farmers of the community a better market. Six years later Mr. Sprunger bought the name, good-will and equipment of the auction for $500. and built it to a million dollar business and still operates it. In 1930 he began holding weekly sales.

During the depression year of 1932 the *Ohio Farmer* published a feature account of the Kidron Auction Market with many illustrations, which aroused much interest and was followed almost immediately by the establishment of auction markets in various parts of the state. Many of them then, and others established since, became mixed markets. Others handled only livestock; at present there are 80 strictly livestock auction markets in Ohio.

"Some of these auctions today are a disgrace to the livestock industry and to the veterinary profession, but the majority are honest, legitimate, competitive markets of great economic advantage to the livestock industry. Auction markets are the greatest farm relief the farmers have ever had and they haven't cost the taxpayer a penny."

If properly regulated, auction markets would be of even greater value to their communities, but they are inadequately regulated by law for either the patrons or operators. The better markets will support more regulation in the interest of the public, but those which ought not to exist have always opposed regulation of any kind and probably always will. These markets are still on trial. They have not weathered a panic or, for example, an outbreak of foot-and-mouth disease. Regulations that would aid the industry in putting its house in order all down the line would go far to assure the future of the community auction in time of adversity.

The well operated auction is not a disease dispersal point. Of course, wherever animals are agglomerated in numbers, there is a chance for disease to spread, but the hazard is

minimal at a well run market and the advantages of such a market far outweigh any and all disadvantages. There was no control of auction markets in Ohio from 1917 to 1935. Since the latter period several laws have been enacted regulating these markets and with each increase in the regulations the markets have improved and grown greater. Unfortunately no adequate personnel for the enforcement of these laws has ever been provided. Ohio has a game protector in each county but only six inspectors of auction markets in the whole state. "Which is the more important to Ohio, game or livestock?"

● NEW BIOLOGICAL AND PHARMACEUTICAL AGENTS

Notes from a report of the Committee on Biologics and Pharmaceuticals, by A. H. Quin, D.V.M., Jensen-Salsbery Laboratories, Kansas City, Mo., Chairman.

No licenses for the manufacture of veterinary biological products were cancelled during the year. Three new licenses for vaccines were issued, one for mink, one for foxes, and a Pseudomonas vaccine.

In Argentina a combined blood and tissue, crystal violet vaccine for the prevention of hog cholera is being used successfully by making the injection intradermally.

Both the formalin-killed and the live-virus avian pneumoencephalitis vaccines were used in enormous quantities during the year with satisfactory results.

An avianized rabies vaccine propagated in chick embryo was announced during the year.

An anatoxin for "over-eating" disease in lambs (*Clostridium perfrigens*) was used with satisfaction on feeder lambs.

A desiccated (lyophilized) Brucella (strain 19) vaccine came into wide use. This vaccine maintains its potency for a very long period in unbroken ampules, but when dissolved in saline solution it deteriorates rapidly and should be used at once. In too many instances this was not understood or was ignored and unused portions of the dissolved vaccine were held in refrigeration for use later. On this account discontinuance of the five-dose vial is contemplated forcing all to use the more expensive one-dose package.

Brucella (M) vaccine received extensive use experimentally during the year with highly encouraging results. In Michigan, it was used routinely in field vaccination of more than 60 thousand cattle of all ages with entirely satisfactory results to date.

The ring test for brucellosis received extensive trial during the year and gave only fair promise of being useful in brucellosis control. The critical step in this test is the manufacture of the antigen. The antigen made according to the Danish method (the antigen used in most of the trials of this test) does not differentiate between Brucella infection and mastitis. In this country, this occasions many false positive reactions. Huddleson announced (*Vet. Med.*, 44:145, 1949) the preparation of a ring test antigen that does not give a positive reaction to mastitis infection and thereby removes the chief cause of error in the ring test as heretofore employed in this country.

The use of the soluble sodium salts of the sulfonamide drugs intravenously has become extensive. It constitutes a prompt and effective therapeutic measure.

It was established during the year that the use of two and sometimes three of the indicated sulfonamides in combination is more effective and less toxic than either or any of them alone.

Interest continued at a high level in the development of new and better antibiotic products and in the discovery of better methods of employing those already well known. By the use of these products, therapeutic results heretofore unattainable have become commonplace and even greater achievements are promised in the near future.

The Committee urgently recommends federal control of the distribution of products containing live viruses or bacterial cultures, and diagnostic agents which produce allergic reactions.

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Antibiotics and Blood Coagulation

Although of no practical clinical significance, it has been shown by Mocht and Farkas (*Science*, 110:305, 1949) that clotting time of blood is shortened at the height of antibiotic therapy. In the experience of the authors, 200 mg. of aureomycin reduced the normal coagulation time in cats from 11 to four minutes within 75 minutes after oral administration. In rabbits, a 100 mg. dose shortened the time to 1.5 minutes. In man, the normal eight-minute coagulation time for blood was shortened to five minutes after ingestion of 250 mg. of aureomycin and to 3.5 minutes after administration of a second dose.

Similar observations have been reported following oral administration of both penicillin and streptomycin.

Needed Improvement in Cooperative Disease Control Projects*

T. O. BRANDENBURG, Bismarck, North Dakota

IT HAS been the custom of this organization for the president to make an address, and I believe it is assumed that such address will contain, besides summaries of achievements of the livestock sanitary forces of this country, sound criticism and recommendations for carrying on this work more adequately.

After a war is over a great general may rest on his laurels and record of achievements, but our war against disease is never over, and the public, which we serve, is not interested in the meat, wool or leather of yesterday, but asks, "What of today and tomorrow?".

Dr. T. O. Brandenburg, Executive Officer of the Livestock Sanitary Board and State Veterinarian of North Dakota.

Dr. James Farquharson in his presidential address before the 83rd annual meeting of the American Veterinary Medical Association which was held in Boston, said:

"One of the weakest links in organized veterinary medicine is state veterinary service. Throughout the country it varies from good, to fair, to lackadaisical, to corrupt. In some states, the objective and organization do not lend themselves to efficient and honest public service. These organizations are in the clutches of politically influential groups in which the office of state veterinarian is simply tolerated in name, and is utilized by ambitious groups for protection of their own selfish interests and ulterior motives. Political domination is often associated with inefficiency, extravagance, and waste of public funds.

"Frequently, the appointees of the sanitary boards consist of men who represent only one group of the livestock industry and ignore other interests. Often the state veterinarian is relegated to a subservient position by having policies imposed on him by a board that is neither intelligently informed nor qualified to pass on questions pertaining to animal disease control and public health. What I have to say is not applicable to all, but the conditions cited are present in many states. Some of the abuses and irregularities which show the futility of state veterinary service are well known and on record. The tenure of office of the average state veterinarian is insecure and is often dependent upon political whims. The appointee has frequently no special training in disease-control work. There is little or no incentive to outline an intelligent, practical, and progressive program. The inclination is to ride the wave and follow the dictates of the political supporters. On many occasions the office is abused in order to give free service for the benefit of the political few.

"In general, the salaries of state veterinarians and their deputies are not commensurate with the responsibilities of the office and services rendered. The annual income from livestock and poultry in one rich agricultural state is approximately $500,000,000 which represents 72% of the entire income from agriculture. Despite the fact that the chief reason for losses to the livestock industry is disease, the statutes of the state provide the salary of the state veterinarian, charged with control of animal diseases, be $3,600. per annum. In one of the largest livestock states in the Union the salary of the same official is $2,400. In still another, the office of state veterinarian charged with control of animal diseases, calls for a salary of $1,400. Such token salaries indicate the low esteem in which the office is held and do not promote competent and efficient veterinary service.

"Much of the esteem held for the veterinary profession by the livestock industry, the general

*The president's annual address, at the 53rd Annual Meeting of the United States Livestock Sanitary Association, Columbus, Ohio, Oct. 12-14, 1949.

lay public, and the allied medical profession is undoubtedly due to the splendid record of achievement of the United States Bureau of Animal Industry. This organization has been fortunate indeed in having as leaders and key personnel so many men endowed with scientific ability, broad vision, and courage.

"To maintain this high esteem it is essential that the Bureau shall continue to be both progressive and aggressive, and that the personnel shall be recruited from outstanding men in the veterinary profession.

"This is no time for the Bureau to complacently look back and coast on its past achievements. We have as many problems confronting the veterinary profession today as at any time in our history and we confidently expect the same aggressive leadership from the Bureau in solving these problems as has been given in the past."

This criticism of some state livestock sanitary departments seems severe, but judging by such investigation as I have made, I find that at least some of the statements of Doctor Farquharson were not overdrawn, but neither should his laudatory remarks about the BAI indicate that it has always been free from criticism.

Presidents of this organization have, in the past, been prone to extol the many accomplishments of the BAI and veterinary sanitary officials as a whole, and we have all appreciated this praise very much. It has been sweet music to our ears, anesthetizing us to our many shortcomings.

Today, I propose to ignore the progress we have made and point out, as best I can, my conception of the weaknesses of our whole livestock sanitary set-up, with particular reference to the BAI, and its cooperative relationship with the various states which Doctor Farquharson passed over so lightly as far as any criticism was concerned, and out of this see if we can work out a new and better plan, in the hope that faster advances in the control of transmissible diseases of livestock can be made.

The Bureau of Animal Industry, USDA, is, so far as I have been able to ascertain, the only federal department cooperating with the various states that does not allocate money directly to the states. The BAI cooperates only by furnishing paid veterinary services operating under the authority of the states, but under the direction of a chief inspector employed by the Bureau.

This system is a survival of a set-up in the early days, which was a necessity at that time, due to there being no state livestock sanitary organizations in some states, or at best only inadequate ones, often seriously blighted by politics.

Since that day many of the states have developed splendid livestock sanitary departments, headed by competent state veterinarians.

Experience now, and in the past, indicates that no enterprise can be successfully operated with more than one person in charge, and livestock sanitary work is no exception to this rule.

The present system is to blame for most of the discord which exists in so many states between the Bureau and the state departments, a discord which eats into every branch of the two departments and sometimes becomes so bad that the Bureau is forced to change the inspector-in-charge, or the state veterinarian, wearying of the struggle, may retire; or if he is less popular than the inspector-in-charge, may be retired without his consent in the interest of harmony.

The wastage due to this double-headed system is appalling and takes its toll of our much needed top veterinary manpower, as well as huge sums of money uselessly used up in maintaining two offices in every state with more or less duplicated records and work on all cooperating projects.

In most, if not all, states livestock owners are completely confused by the present system, as are many county agents and a few veterinarians. An owner may write to the state department for a brucellosis test, or other request, in line with the cooperating effort, and failing to get service in a week or ten days, write the BAI with the result that he is often visited by representatives of both departments. County agents commonly resort to such tactics in an effort to get prompt action for their clients and the result is wastage, overlapping of work and irritation.

When both heads of these agencies cooperate fully, much can be done to curtail these losses and errors; but if there are any jealousies or lack of cooperation, the results become increasingly worse depending on the amount of general animosity between the two department heads. The veterinarians and other employees of the two departments soon sense the prevailing animosity and scan the horizons for proper inflammatory material to feed the growing feud.

You all know the story better than I can tell it, and I am convinced, and I am not alone in this contention, that the system should be changed and soon; and I believe this group being made up, as we are, of all those affected,

should make a careful study of this situation.

In 1935, during the meeting of the International Veterinary Congress in New York, while on the bus tour to the Walker Gordon Farms, I happened to share a seat with one of the German delegates. I do not recall his name; he could talk a little English, I understood a little German, and we managed to carry on a conversation. He wanted to know if I was on Herr Mohler's force. I told him I was a state veterinarian and tried to explain my duties. I am sure he didn't understand. He could not see the use of having two heads in a state when one could do so much better unhampered by the other.

I tried to explain "states rights" and all that goes with it, but he couldn't see what that had to do with disease control in livestock, and I couldn't either, but replied that that's the way we have it here, which stimulated him to say, "You Americans have too much money to spend, but Herr Mohler has done a wonderful job in spite of all these handicaps."

My ideas may be unworkable under present conditions. I believe, however, that the BAI should continue to cooperate with the various states in the major transmissible disease programs by a system of matching funds, all monies for livestock sanitary work, including state and federal, to be spent by the state and under its supervision, but conditioned by certain signed agreements with the federal government, chief of which would be that all salaries paid out of such joint funds should not be lower than those prescribed by the BAI, and that all projects are to be carried out in cooperation with BAI, and that all states should have livestock sanitary work supervised entirely by the state or entirely by the bureau but not by both.

Some states, where veterinarians are scarce, may prefer to have all the work done by the Bureau and be willing to match money on projects on such a basis. The Bureau activities in the interstate movement of livestock should be extended and should be the Bureau's exclusive responsibility except in cases where the state's regulations are more exacting than those of the Bureau's in which case the state regulations, in addition to those of the Bureau, should be under the control of the state.

Certain exceptions might have to be made relative to such important plagues as foot-and-mouth disease, because of their extreme infectiousness and consequent national significance.

I request that this matter be placed for first consideration on the agenda of the Executive Committee of this association for discussion and possible action, and if they see fit that the president be requested to appoint a committee to give this subject careful study during the coming year and report to the Association next year.

I suggest that this committee be made up of the best talent this association has, and that not less than two members be from the BAI and two be state veterinarians of proved worth.

Under this proposed system the BAI would review and pass on projects and claims for indemnity; all records of tests to be kept by the states but a monthly report made to the BAI. such as is now made to the Bureau each month by their unit in the states.

The field men now in the employ of the BAI would be paid out of the joint fund described in the foregoing and would be under the direction of the state.

Where the state agrees to turn over its livestock sanitary work to the Bureau, the inspector-in-charge would act as state veterinarian for that state.

I am quite sure that such a system will in time raise the general level of livestock sanitary work in all the states, assure better general salaries, better services, and reduce the ruinous effects of politics.

The relationship I am suggesting for the BAI with the various states is not original by any means. In my own state I have seen it in operation by other federal agencies. The Bureau of Public Roads, for one example, matches money with the state and millions of dollars are turned over annually to our Highway Department. Only a few years ago this money was withdrawn and our Highway Department directed to get its house in order or there would be no more federal aid for our roads. You can hardly imagine how quickly this was done. A competent head with adequate salary was forthcoming almost immediately.

Another state agency maintained partly by a federal grant, paid its head a salary a little over twice what most of the states' elective officers received. Naturally there was great jealousy and the legislature was determined to cut the salary of the head of this department, but when they learned that all federal money would be withdrawn if they did, the salary and the head of the department were left *status quo*.

Which brings us to the very definite conclusion that the BAI would have the power, under such a system, of strengthening the livestock sanitary departments in those states

where they are now weak, instead of from necessity undermining them still further and building the Bureau stronger in these weak spots. Such action on the part of the Bureau would take moral courage, but the whip they would have could be very effective in getting results.

It will take courage even to attempt making a change of this kind, but something needs to be done if we are to realize our best efforts as veterinarians engaged in a common struggle against animal diseases. Such a system would, in my opinion, assure the BAI of continuing the splendid record of leadership and achievement they have maintained from the beginning, and would give them the master role of raising the general level of livestock sanitary service and the prestige of veterinarians everywhere. It is proper the Bureau should have this role.

In a BAI release of February 25, 1949, to presidents of state veterinary medical associations, the following paragraphs occur:

"We, along with many other members of our profession, have realized for many years that we must increase the volume of work if rapid progress is to be made in eradicating brucellosis. With about 25 million female dairy cattle over two years old, nearly 15 million similar beef cattle, and approximately 12 million heifers being raised each year, we know the testing of less than six million cattle and the vaccination of three million calves are not enough. Both the Bureau and the different state livestock sanitary officials have made every effort to recruit more veterinarians for this work, but the results have been far from encouraging.

"The cattle owners are rightfully looking to the Bureau, the state livestock sanitary officials, and the veterinary profession as a whole for leadership in eradication of brucellosis. As a group we must not fail them. As interested people have realized the gravity of the situation, the use of lay help has been given more and more consideration. Thus the report of the Committee on Personnel of the brucellosis conference held in Chicago, June 10 and 11, 1948, three of whose six members are veterinarians (one representing the American Veterinary Medical Association), contained the following statement:

" 'The use of lay personnel in areas lacking adequate veterinarians:

" 'Properly trained lay personnel, veterinary medical students, and other specially trained lay persons working under the supervision of veterinarians could relieve these men of many tasks and allow extension of the eradication program in areas now lacking sufficient professional coverage'."

Also quoted is the following from the report of the American Farm Bureau Federation, Special Committee on Brucellosis, in approving the uniform program recommended by the United States Livestock Sanitary Association for the control and eradication of brucellosis:

"In states and areas where there is a scarcity of veterinarians, we urge training of lay personnel to supplement our veterinary forces in order to bring about a rapid and energetic program."

Veterinarians' main objection to this seemingly radical departure from the customary procedure stems from the fact that they fear we will develop quackery and take from the profession work which they will need should hard times come again.

It is our belief that we must look forward and not backward, and that the veterinarian of the future, with his long period of training and preparation, will not care to spend his entire life as a technician. Six years of veterinary training should fit men for greater tasks.

In any case, since it has now been thoroughly demonstrated that laymen can perform these duties adequately, we are faced with this question: Is the control of brucellosis or any other disease done for the benefit of the veterinary profession or for the livestock industry and for the general welfare of all the people?

Veterinarians are a specially trained professional group and disease control among animals is dependent upon their knowledge and service. Their future attainments will depend a great deal on how well they can develop the more difficult phases of their profession and how well they delegate the routine tasks to others.

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Student Enrollment

According to tabulated statistics (*Jour. Am. Vet. Med. Assn.*, 115:497 (Dec.), 1949) there are 3,790 students enrolled for the study of veterinary medicine in the United States and Canada. This number is a total increase of 301 over 1948. Totals by academic classification are: freshmen, 958; sophomore, 968; junior, 884; senior, 839; specials, 19; graduate, 114.

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Russian, formerly of slight importance as a scientific language, now follows French and German in importance.—*S.N.L.*

The Use Of Neohetramine In Treatment Of Allergies In Small Animals

J. DAVID SCHAFFER, B.S., D.V.M., Paoli, Pa.

EXPERIMENTAL STUDIES have established unquestionably the value of antihistaminic agents in the treatment of human allergy. In the last three years thousands of persons have employed this class of drugs, under a physician's care, with satisfactory results. In addition to work done in the field of therapy for human allergies, similar research is being carried out in veterinary practice. Experimental data and clinical results concerning an antihistaminic agent known as neohetramine* (2-(N-dimethyl-aminoethyl-N-P-methoxybenzyl) - amino-pyrimidine monohydrochloride) are reported here.

Pharmacologic Characteristics

Antihistaminic drugs afford symptomatic relief in the treatment of hypersensitivity[1]. The toxic reactions which appear on prolonged therapy serve to emphasize that these drugs have actions other than those specifically referable to histamine antagonism. Benadryl exhibits an atropine-like action and, in large doses, opposes the effect of sympathetic nerve stimulation[2]. Pyribenzamine has been found to enhance epinephrine response[3]. Studies have shown that the acute toxicity of neohetramine in mice was about half that of other antihistaminic agents; that neohetramine showed marked activity against the actions of histamine in the bronchioles and capillaries although quantitative estimates of the amount of histamine antagonized by neohetramine varied with the method of testing; that neohetramine conferred protection against anaphylactic shock; and further that this drug has been shown to be the least toxic of the antihistaminic drugs studied[4].

The substance is very soluble, and is stable in aqueous solution. Two percent neohetramine in neutral isotonic solution can be injected intradermally without any noticeable change at site of injection[5]. In man there is no noticeable effect on blood pressure after medication. No changes were found in urinalysis and electrocardiogram[6]. Neohetramine has an advantage over all other antihistaminics investigated, in that is is extremely well tolerated, and may often be used successfully when patients are unable to take other drugs of this series because of unpleasant side actions[7].

*Supplied through the courtesy of Wyeth, Inc., Philadelphia, Pa.

Clinical Citations

Neohetramine hydrochloride is valuable in treating animals for symptoms attributable to the release of histamine, or histamine-like substances, as occur in vasomotor rhinitis, urticaria, allergic dermatitis, certain asthmatic conditions and drug sensitivity reactions. The following seven cases out of 30 treated by the writer, illustrate the varied applications of neohetramine and the results obtained.

Case 1.—A mongrel bitch, two years of age, was presented in a distressed condition, manifested by numerous wheals on the skin, generally dispersed over the body. The owner could explain only that such swelling occurred overnight and that the dog had slept most of the previous day in the sun by a blooming forsythia garden. The bitch had been kept in the yard on Mondays which were washdays, and was apparently affected by the forsythia, as the condition recurred most severely on Tuesday mornings during the flowering stage of the forythia. One 100 mg. tablet of neohetramine, administered every five hours for five doses restored the animal to normalcy.

Case 2.—A Dalmation male, two years of age, exhibited urticaria, quite pronounced, with considerable itching. The history disclosed that the dog had recently been purchased and the present owner was feeding quantities of horse meat. Inquiry was made about previous diet, as it was assumed that horse meat in large quantity might be the source of disturbance. Neohetramine (100 mg.) every five hours for five doses effected resolution. Lamb in reduced quantity was substituted for horse meat and there was no recurrence. Six months later horse meat was in one instance fed in error and the urticaria immediately reappeared. Routine administration of neohetramine tablets again eliminated the disturbance.

Case 3.—A ten-year-old spaniel dog was presented in extreme respiratory difficulty, reported to be chronic. The dog had been quartered in a coal cellar, apparently for the length of time that the wheezing cough had existed. Neohetramine was employed in 50 mg. doses twice a day for five days with satisfactory re-

sponse. The dog was placed in an outdoor kennel. There has been no recurrence.

Case 4.—A Boxer bitch, ten months of age, was returned to the hospital the day following an injection of 5 cc. of rabies vaccine. Her body was covered with small welts. Neohetramine tablets were administered in doses of 100 mg. three times daily for three days until the desired result was obtained.

Case 5.—A Persian cat, five years of age, exhibited extensive patches of shedding hair. No external parasites or fungus were involved as determined by microscopic examination. Neohetramine tablets in doses of 50 mg. were administered. A frothing salivary reaction occurred almost at once following administration. An alternative was employed in the form of syrup of neohetramine (containing 6.25 mg. per cc.) with the pleasing result that the cat lapped the syrup from the spoon. Approximately 10 cc. were administered by spoon each morning, noon and night for one week and the shedding ceased. The areas were treated with oils containing lanolin and the hair was eventually restored.

Case 6.—A Siamese cat, two years of age, castrated male, showed severe erosion of the cutaneous areas surrounding the genitalia. Neohetramine tablets produced a frothing salivary reaction, but the syrup was apparently pleasing when administered. Four days of medication with neohetramine syrup, three times daily, resulted in eradication of erosive rash.

Case 7.—A mongrel cat, in advanced pregnancy, was presented for correction of expulsive emesis that occurred shortly after feeding time. The appetite remained normal, but the cat was losing weight because of inability to retain solid food. Syrup of neohetramine, ½ teaspoonful just after feeding, twice daily, arrested the emesis. The treatment was continued ten days, until birth of the kittens.

Summary

An evaluation of a new antihistaminic agent, neohetramine, is presented for veterinary use. The writer has treated 30 cases and presents details of seven as an indication of the usefulness of the preparation. Particular attention is directed to the pleasing manner in which the drug in syrup form is accepted by cats. Neohetramine offers prompt and safe symptomatic relief against varied manifestations of animal allergy.

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New Landmark for Cornual Nerve Block

J. D. WHEAT,* Manhattan, Kansas

A VERY common complaint among veterinarians who have attempted to perform painless dehorning by blocking the cornualis nerve with a suitable local anesthetic, is that they experience difficulty in getting good anesthesia. The most common method of performing this nerve block is to insert the needle on a point halfway between the middle of the orbit and the middle of the base of the horn, and at the lateral border of the frontal bone, in a downward and inward direction, keeping as close to the lateral border of the frontal bone as possible. The needle is inserted about ¾ of an inch and the anesthetic deposited.

In making a number of dissections of this nerve in the mature bovine, it has been found that the cornualis nerve varies somewhat in its course ventral and parallel to the lateral border of the frontal bone. In some animals the nerve is more superficial than in others. There is also a variation in the perpendicular distance between the nerve and the lateral edge of the frontal bone. Another thing to consider is the fact that for about two-thirds of its length from the bony rim of the orbit to the base of the horn, the nerve is surrounded by fat and is covered by a greater depth of tissue than it is in the last third of its course. These two factors make the accurate deposition of local anesthetic much more difficult.

With the above variations in mind, a different approach was attempted in order to

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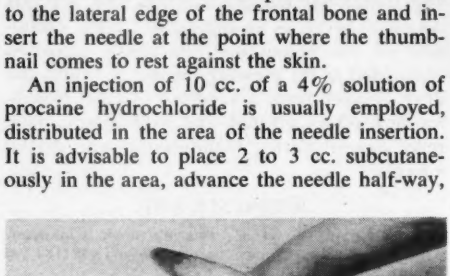
secure better results with local anesthetic. The following method has worked very well and reports from other veterinarians who have tried it are favorable.

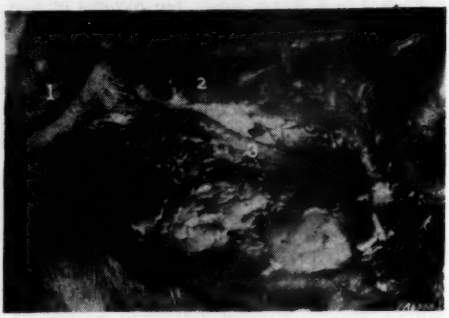
A one-inch, 19-gauge needle is inserted at a point 1½ to 1¾ of an inch anterior to the base of the horn and ½ to ¾ of an inch ventral to the lateral edge of the frontal bone. A simple method of determination of this latter distance is to place the pad of the thumb on the lateral edge of the frontal bone, allow it to roll in towards the temporal fossa ventral to the lateral edge of the frontal bone and insert the needle at the point where the thumbnail comes to rest against the skin.

An injection of 10 cc. of a 4% solution of procaine hydrochloride is usually employed, distributed in the area of the needle insertion. It is advisable to place 2 to 3 cc. subcutaneously in the area, advance the needle half-way,



Method of inserting the needle just under the lateral ridge of the frontal bone anterior to the base of the horn. Thumb of the right hand is resting on the lateral ridge of the frontal bone.

distribute half of the remaining amount within a half-inch radius and then with the needle inserted its full length deposit the remaining amount. It is advisable to wait 15 to 20 minutes before attempting to remove the horns. This is not a handicap when there are several animals to dehorn because by the time one has completed blocking the nerves, the first animal is ready to be dehorned. In bulls with large horns it is advisable to use more than 10 cc. of procaine solution and in addition to infiltrate the skin posterior to the horn with the anesthetic. The roll of skin in this area has a different nerve supply and when removing horns with a saw it sometimes gets in the way of the saw blade causing pain, if it is not anesthetized.



Illustrating the course of the cornual nerve. (1) Base of horn. (2) Lateral ridge of frontal bone. (3) Cornual nerve. Note the course of the nerve and the surrounding fat. It will be observed that the anterior portion of the nerve in the dissected specimen is deep and covered with fat, becoming more superficial as it progresses posteriorly.

I will not say that it is practical to attempt a cornual nerve block on large groups of young range cattle when one is working them through a chute, but I do believe that the veterinarian owes it to both the animal and the livestock owner to use anesthesia when dehorning dairy cattle, mature beef cattle and bulls. It produces a very favorable impression on the owner, makes it possible to dehorn lactating cows without a drop in milk production and helps make an unpleasant job for the veterinarian more tolerable.

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On the occasion of its Silver Jubilee Celebration and its July 1949 commemorative issue, VETERINARY MEDICINE congratulates *The Indian Veterinary Journal* (The Journal of the All-India Veterinary Association), and Editor P. Srinivasa Rao, for the contributions made by this excellent publication to the advancement of veterinary science.

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From a recent clipping it is encouraging to note that The Sterling Research Corporation of Buffalo, New York, manufacturers of the popular KO-EX-7 brom thymol mastitis detectors, have taken a very pronounced position regarding the treatment of mastitis and one which we think will be interesting to our readers.

In a letter recently mailed to a subscriber of VETERINARY MEDICINE the company makes their position clear in the following words:

"The treatment of cows having mastitis is entirely within the province of the veterinarian."

Postvaccinal Paralysis And Demyelination In The Dog Following Antirabies Vaccination

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GEORGE A. JERVIS, M.D.**, Thiells, New York, and
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A LITERATURE REVIEW on the subject of postvaccinal reactions in dogs following mammalian tissue origin rabies vaccine injections reveals reports mainly from foreign countries. Plantureux[1, 2] in Algiers reported paralysis in dogs following injections with formalin-inactivated rabies vaccine. Other types of rabies vaccine, the Pasteur and Phillips-Becker, caused paralysis in dogs as observed by Remlinger and Bailly[3, 4] in Tangier, and Girard[5] in Madagascar. Paralysis may be followed by death as described by Markowski and Legezynski[6]. In Budapest, Mocsy[7] reported on neuropathological accidents following mass vaccination of dogs and, for the first time, revealed the basic pathologic changes.

In this country, postvaccinal reactions in man have been extensively studied, but data on this phenomenon in dogs are meager. Several veterinarians, by personal communication, have mentioned observations of paralysis and, occasionally, deaths in dogs, following rabies vaccinations. It is the purpose of this paper to report that in dogs neuroparalytic accidents may result from phenol-inactivated tissue rabies vaccine injections as has been well demonstrated in human beings. This presentation includes six cases of postvaccinal paralysis or death in dogs following antirabies vaccination.

Vaccine

In the cases reported here, the vaccine used was prepared according to a standard procedure. A 40% suspension of horse brain infected with a strain of fixed rabies virus was inactivated by the addition of 1% phenol, incubated at 37 C. for 24 hours, and aged for five days at room temperature. The stock vaccine was diluted to make a 20% tissue concentration and less than 0.5% phenol, and had passed the safety and potency tests as required by the Bureau of Animal Industry, U. S. Department of Agriculture[8]. The absence of live virus was demonstrated by intracerebral inoculation in mice.

Case Reports

According to occurrence, the case reports will be divided into two groups.

Group I. In a kennel of 90 healthy dogs, 60 Great Pyrenees and 30 St. Bernards were each given a single subcutaneous injection of 10 cc. of the above rabies vaccine. All had been previously distemper-immunized by the Laidlaw-Dunkin method and maintained on the best of diets and in excellent quarters[9].

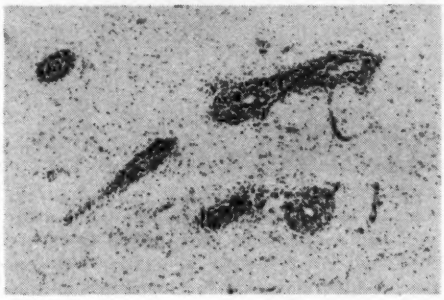

Fig. 1. Perivascular infiltrations of small vessels and capillaries. Giemsa's stain. Medium power.

Four Great Pyrenees, but none of the St. Bernards, developed paralysis following the vaccination. Cases 1 and 2 were vaccinated for the first time, while case 3 had been previously vaccinated at the age of one year, and case 4 had been vaccinated before at the age of two years.

Case 1. A three-year-old bitch began exhibiting signs of illness—loss of appetite and weakness of limbs 14 days after vaccination. Twenty-four hours later the hind limbs were unable to support the body weight and within the next 12 hours paralysis had extended to the muscles of the forelimbs, throat, head, and neck. Euthanasia was executed on the third day of illness but no autopsy was performed.

Case 2. A male dog, 14 months of age showed an acute progressive paralysis on the eighteenth day after vaccination. This appeared to be of the spastic type involving at

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first only the hind limbs, but, within 24 hours, the muscles of the forelimbs, trunk, neck, and head. Tremors and clonic spasm were observed and prostration was complete. The temperature remained normal. At this point euthanasia and a complete autopsy were performed.

Case 3. A bitch, two years and six months of age exhibited paralysis on the nineteenth day after vaccination. The disease followed the same course as in case 2. Euthanasia was performed on the third day of illness and the animal was autopsied.

Case 4. A three-year-old male dog, a litter mate of case 1, showed partial paralysis on

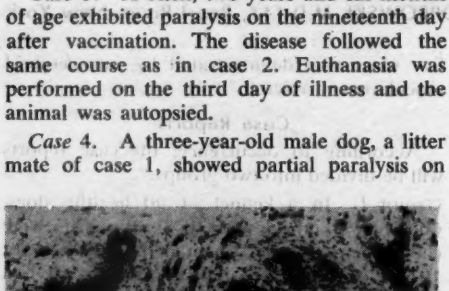

Fig. 2. Perivascular infiltrations showing a tendency to "spread out" into the surrounding parenchyma. Nissl's stain. Medium power.

the twentieth day after vaccination, manifested by difficulty in elevating the body with the hind limbs. The dog was unable to walk, but there were no other symptoms. During the next three weeks there was some improvement of the partial paralysis, in that walks of short distances were possible, but the difficulty in elevating the body persisted. Some atrophy of the hind legs was evident. Nine weeks later locomotion was markedly improved but occasional weakness occurred, manifested by collapse of the hind limbs. This was considered to be a spastic paralysis.

Group II. February 8, 1949, all animals in a kennel of 60 mongrel dogs varying between six and 18 months of age were injected with rabies vaccine as previously described. Each dog received a bilateral, subcutaneous injection of 2.5 cc. per injection site.

Case 5. An eight-month-old male mongrel exhibited spastic paralysis of the hind legs on the sixteenth day following rabies vaccination. Twelve hours later, the paralysis had extended to the forelegs and included the neck. Euthanasia was performed, followed by an autopsy.

Case 6. A seven-month-old male mongrel was found dead 24 days after rabies vaccination. It should be mentioned that the observation of the dogs in this kennel was made daily but slight evidence of paralysis or locomotion dysfunction could have passed unnoticed. Postmortem examination was performed.

Note: In the above cases (2 and 3) the following tissues were collected aseptically for bacteriologic and histological examination: brain, entire cord, lung, liver, spleen, and kidney. In cases 5 and 6 only the brains and cords were collected.

Attempts to Isolate the Infectious Agent

In cases 2 and 3, portions of the central nervous tissue were ground separately in physiologic saline to make a 10% suspension. Aliquots of each were inoculated intracerebrally into two dogs, three guinea pigs and 12 mice. During an observation period of two months there was no evidence of illness in any of the animals. To further determine if an infectious agent was present, two mice in each group were sacrificed on the seventh day after inoculation and suspensions of their brains were sub-inoculated into two additional groups of 12 mice each. Again no signs of illness were observed during a period of two months in any of the animals.

In cases 5 and 6, a 10% saline suspension was made of each sample of brain tissue and aliquots injected intracerebrally into mice, using six mice per sample. There was no evidence of illness in any of the mice during a 21 day observation period, except in one which died on the fourth day. Autopsy and cultural findings showed death to be due to bacterial infection.

Pathology[9]

In the cases examined at autopsy (2, 3, 5 and 6) there were no gross changes of the visceral organs. Routine histological examination of the lungs, liver, spleen and kidney failed to show anything of significance.

On gross examination of the central nervous system some portions of the spinal cord appeared somewhat softer than normal and, on the cut surface of the cerebral hemisphere, a few small areas of grayish discoloration were apparent throughout the centrum ovale.

Histological examination showed conspicuous and widespread changes. The typical lesion consisted of multiple focal cellular infiltrations with demyelination, present predominantly in the white matter but scattered throughout the central nervous system. Various stages of this lesion could be observed and arbitrarily may

be divided into three types. The smallest lesion, as seen with cellular stains, (figure 1), consisted of a few concentric layers of infiltrating cells occupying the Virchov-Robin space of a venule and less frequently of an arteriole.

In a further stage, the perivascular infiltration showed a marked tendency to spread out into the surrounding parenchyma. In the Nissl preparation (figure 2), the lesion appeared as a patchy accumulation of proliferating cells centered by the perivascular infiltration. Among the proliferating cellular elements, many macroglia cells could be recognized and in the Nissl preparation often exhibited swollen and pale nuclei indicating degenerative changes. In the Weigert-Pal preparations, the lesion appeared as a demyelinated patch centered by the infiltrated vessel. Debris of myelin and swollen fragmented sheaths were a common finding within the demyelinated area, particularly toward its periphery.

In an apparently more advanced stage, the lesions were more extensive, being occasionally visible to the unaided eye. In the Nissl preparations, the infiltrated area stood out prominently with its margins usually sharply demarcated, either round or irregular in outline, apparently the result of the fusion of several adjacent foci. With the Weigert-Pal stains, the lesions deprived of myelin appeared either as "punched out" patches or as irregular diffuse demyelinated areas (figure 3). Axis cylinders were often destroyed in the center of the lesion but intact axons were usually recognizable in the outer portions of the demyelinated areas.

Fig. 3. "Punched out" demyelinating lesion in white matter of the cerebral hemisphere. Weigert-Pal's stain. Very low power.

All of these types of lesions were found throughout the central nervous system but transitional aspects from one to another of these three main types were often observed.

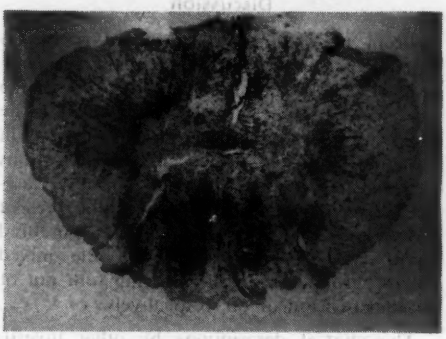

Fig. 4. Diffuse cellular infiltration in the spinal cord. Nissl's stain. Low power.

In the cerebral hemisphere, perivascular infiltrations were present in most of the sections examined, being at times so numerous as to confer the well-known moth-eaten aspect characteristic of human encephalitis following smallpox vaccination. They were encountered in the white matter and, more rarely, in the cortical gray matter or in the basal ganglia. The neuron cells were remarkably well preserved even in the vicinity of the infiltrated vessels. Lesions of the spread-out type were also commonly found in the cerebral hemispheres and thalmus, mostly in the white matter.

Numerous lesions of the three types were found in the midbrain, the pons and the medulla. The white matter showed the greatest involvement and only occasionally did the lesion impinge upon the gray substance.

Conspicuous lesions, essentially of the same types as those encountered in the brain, were observed throughout the whole length of the spinal cord. The white matter was mostly involved. Large areas of demyelination and cellular infiltration were often sharply limited to one section of the spinal cord (figure 4).

Apart from the foci of demyelination and cellular infiltration, no other pathological changes were observed. The neuron cells were well preserved everywhere and no diffuse reaction of glia was encountered. Occasionally

the meninges showed areas of cellular infiltration which often were situated in the proximity of a demyelinated area.

The optic nerves and tracts contained no foci. The peripheral nerves, examined in one case, were normal.

Discussion

From the data presented, there is an apparent correlation between the rabies vaccination, clinical symptoms and pathology. In the past, Mocsy[7] has calculated that following the rabies vaccination of large dog populations in Budapest, Hungary, postvaccinal complications occur in 0.20 to 0.25%, with mortality ranging between 0.05 and 0.08%. In the present series, the incidence in both the purebred Great Pyrenees (group I) and the mixed breeds (group II) was high, being four out of 30, and two out of 60, respectively.

The clinical descriptions by other investigators[1-7] parallel those described in this report. The pathological lesions observed by Markowski[6] and Mocsy[7] included perivascular infiltration of the white and gray matter of the cord with smaller foci in the basal ganglia. Demyelination was not described as extensively as in the present report but it was obvious that some foci were deprived of myelin.

The demyelinating process has been studied by several investigators, but it is not fully understood. However, the pathological findings are well described and research has demonstrated that there are several agents that can initiate the process of demyelination. Hurst[10] stated that, in experimental animals, demyelination could be produced with such agents as lead, cobalt, cyanide, saponin and brain emulsions. The experimentation on brain emulsions, either homologous or heterologous, has suggested that an allergic mechanism may be a basis of explanation[11]. Noninfectious encephalomyelitis has been produced also in monkeys[12-16], guinea pigs[17-19], and rabbits[20-22], by the injection of brain emulsions. The demyelination produced in monkeys is remarkably similar to that described in this paper, with the exception that, in the present cases, the areas of perivascular infiltration and the demyelinated areas were larger.

The possibility of an infectious agent, perhaps a virus, as the causative agent of the demyelinating process, has been considered, particularly since there is some evidence to support this view in the work of other investigators. MacIntyre and his associates[23], writing on canine encephalopathies, has grouped the demyelinating type as a separate entity. Some investigators[24, 25-28] state that the canine distemper virus is the cause, while others[29] believe that there is a variant of the distemper virus (virus B) or that a toxic factor is associated with the virus and may cause the lesions. Recent investigations[30] present evidence that the virus of canine distemper may produce demyelination, but the changes are much less extensive and different in type from those described in the present paper, and can be differentiated by histopathologic study. Moreover, in the present study, four out of six dogs were vaccinated against distemper prior to the onset of paralysis. However, in some cases, as described by King[31] and Innes[32] where distemper infection was not apparent, multiple demyelinating encephalomyelitis was found. This was classed as spontaneous, in lieu of a causative agent. Similar cases were reported by Cerletti[24] in 1912 and in 1930 by Perdrau and Pugh[33].

Thus it is apparent that there may be several agents that initiate the demyelinating process. Some causes remain obscure, while others are well demonstrated. In the present study, the association of postvaccinal paralysis and demyelinating changes with antirabies vaccination seems to be significant.

Summary

Six canine cases of neuroparalytic accidents following antirabies vaccination are presented, including clinical, laboratory, and pathological data. The pathology features a multiple disseminated encephalomyelitis of the demyelinating type. Possible etiologic factors are discussed and correlation to human cases is made.

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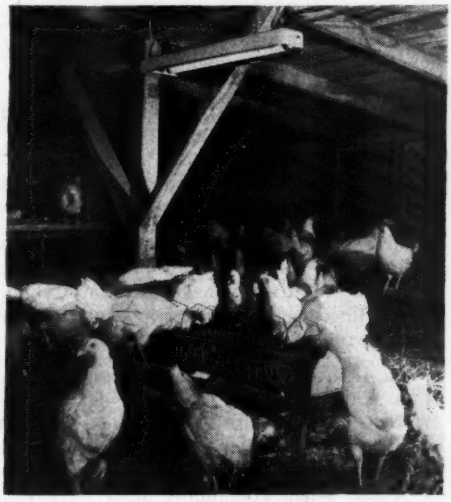
Poultry Irradiation



A new type Westinghouse 20-watt fluorescent sun lamp is stated by the manufacturers to be five times more efficient than older types. Investigations have well established the beneficial effects resulting from irradiation which is claimed to be a most desirable means of artificially providing vitamin D.

Sales Barn Supervision*

HAROLD J. BUNDE, D.V.M., Bowling Green, Missouri

I HAVE BEEN asked to speak to you about the Missouri Community Sale Law from the veterinary inspector's viewpoint.

When this law first went into effect in January, 1944, it met considerable opposition from traders, who frequent sales. Compulsory vaccination of all swine going through the sale constituted the primary objection, whether or not they were sold. Traders had been in the habit of consigning hogs to a sale and if they did not bring the acceptable price moved them to the next sale. This procedure caused repeated exposure to various contagious diseases and the ultimate buyer had to stand the death loss, or at least the veterinary bill, for treatment of sick hogs purchased without proper supervision. To put it bluntly, he purchased one or more diseases as well as swine. Generally speaking, the sales law has gone a long way toward accomplishing its basic purpose —that of prohibiting the sale of diseased livestock and curbing the spread of communicable diseases among farm animals. It is by no means a perfect law, and there are still obstacles which have to be overcome. Occasionally a consignment of livestock still goes through the sale and later becomes sick with the resultant loss to the buyer. But that era is definitely past where the "jockeys" try, knowingly, and intentionally, to peddle obviously sick livestock to an unwitting buyer. An instance is recalled where a horse in an advanced stage of tetanus was brought into the ring and sold as being a "little sore-footed." When the facts were brought out by the veterinary inspector the seller consigned the horse to the rendering plant.

The veterinary inspector is obligated by his position and responsibility to the buyer, the seller, the sales barn management, and to himself. A fine degree of tact is essential in this multiple role.

Our first and most important responsibility is to assure the buyer a square deal. Every effort to detect disease by careful examination must be made, that the buyer may purchase with confidence. This is seldom easy to accomplish. When community sales were first introduced in Missouri, it was with the idea of giving the small livestock breeder an opportunity to dispose of short lots of livestock at convenient locations, thereby circumventing the expense of a long haul to terminal markets. It was then a case of the producer or raiser of livestock being the seller and the trader being the buyer who made his profit on disposal of the animals at the terminal market. Now an entirely different situation exists. Where the trader used to be the buyer, he is now the consignor to the sales barn. He goes into a district and purchases animals of inferior quality at the prevailing price in the territory and takes them to a community sale, in a district where feed is more plentiful and the price of livestock higher. Herein lies the cause of many of the headaches of the veterinary inspector. These animals, even if they are the picture of health at the outset, are transported from one locality to another in infected trucks and are exposed to the inclemencies of the weather and to every infectious disease extant. Veterinary inspectors are required to examine these animals in crowded pens and report on their state of health. Most of the time, accuracy is impossible, but fortunately he can, and should, insist upon an honest and straightforward representation from the consignor. In this way, the buyer can be forewarned and allowed to use his own judgment. If the inspector permits the sale of only those animals which are in apparent good health and informs the buyer if the consignment has been transported over a long distance or has been through a previous sale, he has fulfilled his responsibility to the buyer.

The second responsibility of the veterinary sales barn inspector is to the consignor at these markets. With a view to future business some inspectors have been inclined to be lenient from which some bad experiences have resulted. The veterinary inspector's chief responsibility is to the public. Any favoritism is disastrous, just as is prejudice. The best way to handle the consignor is to make certain that he understands that he cannot sell sick animals at these public sales. If he realizes this right from the start, future difficulties can be avoided. It is not necessary to become belligerent or insulting when we disclose a consignment of diseased animals. Instead, the use of diplomacy in rejection with recommendations for treatment of animals concerned will eventually lead to an appreciation of the value of inspection at all sales barns.

On the confidence of the sales barn manager rests the success of inspectors. If, at the

*Presented at the 59th annual meeting of the Missouri Veterinary Medical Association, St. Louis, June 6-7, 1949.

outset, the management is informed of what the law requires of him and that it is the duty of the inspector to see to it that the barn management meets these requirements, relations may remain amicable so long as the inspector hews to the line. With few exceptions, sales barn managers have accepted the law and cooperated with the inspector. After all, the principal concern of the sales manager is to maintain a good reputation and keep his sales barn in good standing with his customers, both buyers and sellers.

Greater uniformity in the interpretation and application of the regulations by various inspectors over the state should be the effort of all by means of these discussions and so that recommendations can be made for amendments to the law in order to clarify controversial points. Every sale has its own individual problems, but inspectors should strive to stay as close as is practicable to the interpretations of the regulations as set forth by the state veterinarian. For example: At some sales barns the sale of baby chicks, except from pullorum tested flocks, is banned; at other sales no attention is paid to whether or not the chicks are federally approved. Naturally the management where sales are forbidden, seeing commissions that might have been theirs going to others, resent what they regard as discrimination.

The following is a brief resumé of the routine method of livestock inspection employed at sales where I serve as veterinary inspector:

The first thing looked for is the sanitary condition of the premises. Is the manure and litter removed and fresh bedding spread in the pens before each sale? Are the floors and pen walls liberally sprinkled, periodically, with a creosote preparation? This is extremely important as it tends to control ectoparasites such as fleas, lice and ticks.

Next, all the hog offerings are inspected. This does not mean an intensive examination of every hog brought in, but the hogs are looked over when they are lying down resting. If there is any indication of labored breathing, commonly called thumps, or if there is any evidence of coughing or diarrhea, temperatures are taken of several of the animals in the pen. If any abnormal temperatures are disclosed, the lot is rejected. Rejecting only the visibly affected hogs, and releasing the seemingly healthy has proved to be a precarious procedure. One gets along a lot better when the entire pen is rejected. Where there are no facilities for the quarantine of such sick hogs, the consignor is instructed to remove them from the premises. No hogs with knots on their legs are permitted to be sold, except as fat hogs for slaughter. The checker at the barn ascertains whether or not the hogs have been vaccinated for the prevention of hog cholera. A hearsay record of vaccination is not sufficient. A vaccination certificate or an affidavit must be supplied. This is kept on file for a period of one year.

The inspection of cattle is less complicated than the inspection of swine. These animals are ordinarily stabled in large roomy pens and the mangers are usually full of hay so that most of them are either chewing their cuds or eating at the mangers. If their breathing is abnormal, if they show a discharge from the nostrils or eyes, or if they appear listless, temperatures are taken of suspects. If the condition warrants it, individual animals are rejected or the clinical condition is announced at the time of sale and the buyer is asked to sign a form D release. This document releases the sales barn management and/or the inspector from any claims that may later arise because of alleged misrepresentation. Cattle infected with actinomycosis, necrobacillosis or keratosis are not rejected, but are released under form D. White scours in young calves is everpresent at sales, but is not considered a cause for rejection. The auctioneer simply announces the fact at the beginning of the calf sale and the buyers are thus forewarned.

There are many weaknesses in the regulations governing sales barns and sales. As everyone knows, there is much dissatisfaction engendered by the sale of swine. It is common for a feeder or a farmer to seek redress because hogs purchased at a sales barn two or three days or a week earlier are sick and dying. What he doesn't know is that his hogs may have been through from one to six or eight sales during a ten-day period before he purchased them, exposed to contaminated pens and trucks and suffered hardships that lowered their resistance.

Swine should be subjected to a 21-day quarantine whenever they pass through a sale. The regulations provide that when unvaccinated hogs are sold at a sale they must be given hog cholera antiserum only. This vaccination is acceptable at sales for ten days, which may mean and frequently does mean that animals go through a sale nearly every day of that

period. There is a good chance such animals may break when finally purchased by a farmer and taken onto his premises.

One sale in 21 days seems to be about the maximum for the welfare of stock hogs and the safety of the purchaser.

There will be many who will oppose such a regulation as being unnecessary for swine vaccinated with serum and virus. However, cholera is not the only disease by any means, that the 21-day quarantine would help to avoid. The quarantine, of course, could be on the purchaser's premises if he lived in the community, thus it would constitute no hardship for farmers and feeders.

Swine sold for immediate slaughter would, of course, be exempt from this quarantine.

Another faulty feature of our regulations is the one that permits suckling pigs younger than four weeks of age to leave the sales barn without vaccination, provided the sow is vaccinated. Theoretically, these little pigs possess enough immunity to escape cholera. The regulation is based upon this immunological fact. The sad part of experience is the frequency with which every pig in such litters dies of cholera. No pigs of any age should be permitted to go through a sale without vaccination against hog cholera.

There is more trouble from swine "bootlegged" into the state in violation of both Missouri and interstate regulations than with any other livestock passing through sales barns. The problem is really unsolvable with the means at hand. The inspector can do something to keep such animals out of his sale by inquiry among other traders and communicating with inspectors in adjoining states, but in view of the limited funds for enforcing the sales barn law this nefarious practice cannot be stopped.

How To Take Depreciation In Income Tax Returns

HAROLD J. ASHE, Tax Counselor

MANY veterinarians continue to lose large segments of their income due to oversights in properly taking depreciation charges in business schedules of their individual income tax returns. Such oversights artifically inflate taxable income and result in higher tax assessments than the facts warrant.

In offering this article as a means of simplifying the subject of depreciation, the writer suggests that it be read and re-read with a copy of Form 1040, Individual Income Tax Return, at hand for study and turned to page 2. Space for entering depreciation as a business deduction is provided for in line 16 of Schedule C, Profit or Loss From Business or Profession.

The amount deducted for depreciation must be fully explained in Schedule F, also on page 2. The taxpayer taking depreciation on all depreciable items used in his business will find that the space in Schedule F is insufficient to list all depreciable ietms. He should use a blank sheet of paper, heading it Schedule F and stapling this to his return. This should give all information on each item called for in the printed Schedule F on the income tax return.

Let us take typical problems confronting veterinarians and answer them one by one.

Question: I have never before taken depreciation on certain of my equipment, due to oversight. May I start doing so now?

Answer: Yes, if the useful life is not already ended. Example. Certain equipment was bought in January, 1941 and has an estimated useful life of ten years. It cost $1,000. Here is how it would be entered in the depreciation schedule, point by point: (1) name and kind of equipment; (2) January, 1941; (3) $1,000.; (4) none; (5) $800.; (6) $200.; (7) ten; (8) two; (9) $100.

Question: If I have not taken depreciation in past years, may I start now on the above equipment and take the first $100. depreciation, and take another $100. for the next nine years?

Answer: No. That is why column 5 of the depreciation schedule reads: "Depreciation allowed (or allowable) in prior years." You should have taken depreciation, but you didn't, so it is gone. The only depreciation, then, that you can charge off as business deduction is the remaining years from the date you acquired the asset.

Question: This $1,000. of equipment would cost me $1,500. if I had to buy it now. In setting up a depreciation schedule, may I place that value on it and charge off $150. a year depreciation?

Answer: No. Depreciation must be based on what an asset actually cost at the time it was acquired.

Question: I bought some equipment for $1,500. It has a useful life of ten years, making annual depreciation $150. However, as soon as I started using it, it became second-hand. Even though it is now only one year old, I could not resell it for more than $1,000. Can I write off $500. depreciation for the first year?

Answer: No. Do not confuse fluctuation in value of an asset with depreciation. Even though an asset may drop in re-sale value quite sharply the minute it is used, this has no bearing on depreciation. Only that part of the loss in an asset's value which is due to actual exhaustion, wear and tear in business use, during the tax year, may be deducted as depreciation.

Question: I have certain equipment that I am not at the present time using in my business, but which I have used in the past and may use in the future. Can I deduct for depreciation on this equipment?

Answer: Yes, provided it has not already been fully depreciated. Depreciation is applicable to assets "used in trade or business" or "held for the production of income" even though not in use during the taxable year.

Question: Improvements in certain equipment now on the market make some equipment I now have and am using obsolete. I want to buy new equipment, but I still have several years to go to fully depreciate my old equipment. Is there any way I can now write off this old equipment?

Answer: Yes. You may take a deduction for obsolescence where the facts support you. If changing circumstances make it desirable or imperative that the assets be replaced before they have been worn out, and the depreciation deductions alone are insufficient to recover the cost, a reasonable deduction may be allowed in addition to depreciation. However, if the discarded equipment is sold or traded for a sum equaling the amount of the depreciation yet to run, no amount for obsolescence would be allowed. Recovery for obsolescence, in event of a sale, would be the difference between the depreciation unrecovered and the sale price.

Question: I have $1,000. worth of equipment that has ten years useful life. However, I figure that at the end of ten years it will still have scrap or salvage value of $100. How does that affect my depreciation schedule?

Answer: In that case, your depreciation table must make allowance for the asset's salvage value of $100. That is, $900. (instead of $1,000.) would be depreciated over ten years, or $90. (instead of $100.) depreciation annually. Most depreciable assets will have some scrap or salvage value and this should be reckoned with when setting up original depreciation schedules.

Question: I bought a business building, paying $25,000. for it. If the remaining useful life of this building is 25 years may I take $1,000. a year depreciation?

Answer: No. Property that is depreciated must have a limited and determinable useful life in the trade or business. Land, for instance, upon which the building is situated, is not depreciable since it has no determinable life. Therefore, in setting up a depreciation schedule, the cost of the land must be deducted from the total cost, in order to determine what is the cost of the building. If vacant land similarly situated as the land on which this building is located had a value at the time the building was purchased of $5,000., then the taxpayer may safely conclude that the building represents a cost of $20,000. ($25,000. less $5,000.) and his depreciation schedule would be based on this figure.

The length of useful life of a property is often difficult to determine. It depends upon particular circumstances, including the character of the property and its use. A taxpayer who purchases a building, or equipment, which has already been used for several years, would depreciate such building or equipment over a shorter number of years than he would do if he purchased a new building or new equipment. That is to say, second-hand or used assets generally have a shorter useful life from date of acquisition. However, depreciation schedules should clearly indicate that the taxpayer acquired them used, and not new.

Frequently, taxpayers use private cars to some extent in their business. However, this must be a matter of fact. A car that a taxpayer uses only for personal convenience as a means of personal transportation to and from his home and business is not being used for business, within the definition of tax regulations.

Where a car is used partially in business, a depreciation schedule should be set up for the car in the same manner as already indicated for other business assets, and taking a certain depreciation for each year. However, this depreciation may be taken only to the extent that the car is used for business purposes. If the car is used 50% for business and 50% for personal use, only 50% of the depreciation may be taken. The remaining 50% is not a permissible deduction, either as a business expense or as a personal deduction.

EDITORIAL COMMENTS

Season's Greetings

Perhaps youthful enthusiasm over things ordinary dims as the years advance but time never dims man's feeling of warmth as Christmas time approaches. Unfortunately, in a busy world, too little opportunity is available to greet friends and neighbors with good cheer. VETERINARY MEDICINE is happy to have an occasion to extend our readers and their families everywhere . . .

A Very Merry Christmas
and
A Happy New Year

May mid-century 1950 find you all in good health and spirits, better prepared to serve, and to gain in wisdom; may the forward march of our profession acquire renewed momentum from your individual accomplishments.

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A New Format for Veterinary Medicine

With this, the first issue of the forty-fifth volume of VETERINARY MEDICINE, new features, employing the latest developments in the typographer's art of presentation of the written word, are embraced in a new format.

Modern trends in presenting current literature have been developed by scientific experimentation. The objective of these tests is to develop a style that will lessen eye work and fatigue and speed reading, and at the same time embody dignity, beauty and eye appeal. We have adopted some of these new developments in body type, heads, and subheads.

Our earnest hope is that the continuing efforts of VETERINARY MEDICINE to keep abreast of modern trends in presentation of veterinary literature will win the approval of our readers.

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Demodectic Mange

In a letter to *The Veterinary Record* by Dr. Hamilton Kirk (reprinted in the *Can. Jour. Comp. Med.*, 13:255 (Oct.), 1949), the author gives preliminary reports of the parenteral administration of phenamidine. This drug, now being used in Africa against babesiasis, was accidentally discovered to be effective in dogs suffering with demodectic mange.

In the light of the many and varied features of this skin disease to which large numbers of dogs are subject, Doctor Kirk states that in his opinion our only hope of overcoming demodectic mange is through the agency of a drug parenterally introduced, and phenamidine may prove to be the drug.

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Type O Foot-and-Mouth Disease Virus Identified in Mexico

The recent outbreak of active infection of foot-and-mouth disease in Chicoloapan, Mexico, reported last month, was caused by a virus type which had not been present before in the current Mexican plague. Type A virus only has been identified until now and vaccine used has been of this type. Since there appears to be little cross immunity between type A and O, the new outbreak is of grave concern.

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Cobalt Essential to Life

Cobalt is one of the most essential elements in the very fundamentals of life processes and the cobalt-containing, antipernicious anemia vitamin B_{12} is the most powerful factor in the health of living things ranging from man to the common one-celled algae.

Dr. S. H. Hutner of the Hoskins Laboratories of New York, has shown that cobalt enters into the molecules of B_{12} vitamin. Other mineral elements including iron, manganese, zinc, copper and possibly still others are necessary in optimum animal growth and health. —*S. N. L.*

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Synthetic Detergents for Butter Fat Test

A quicker and simpler method of testing milk for butter fat content may entirely supplant the long-standard Babcock test. Dr. Philip Schain, of the Staten Island Veterans Hospital, New York, describes the new test in detail in *Science* (July 29, 1949).

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If you save 2% on your drug bills by payment within ten days over the net amount due in 30 days, you actually earn over 35% per annum interest on the money you spend annually for materials and supplies.

Announcing a Literary Contest For Senior Veterinary Students

TO FOSTER a spirit of friendly competition, and in commemoration of its forty-fifth anniversary, VETERINARY MEDICINE announces a literary contest among all senior veterinary students in the United States and Canada.

Purpose

Every man in our profession is, in a sense, duty-bound to himself and his colleagues. He must (1) continue the study of current professional literature to keep abreast of the advancements in his field and (2) he must accept the responsibility of reporting the lessons learned in his personal experience. Veterinary medicine advances only as members of the profession accept the challenge of nature—of disease and disease processes in animals, to learn more of the secrets of these things. Each succeeding year of study adds to the mass of information accumulated. The graduate of 1950 will be better informed in the initial stages of his practice career than any of his predecessors.

The purpose of this contest is to encourage our young men, who will be admitted to the fraternity of graduate veterinarians in a few months, to contribute to their scientific literature and to learn early the value of reporting the lessons of their experience. In this way, they will be encouraged to join the march of veterinary medicine.

Case Report Contest

The contest will be based on the merits of clinical reports submitted to VETERINARY MEDICINE by senior veterinary students.

The selection of the winners will be made by a judging board of eminent veterinarians.

The publishers of VETERINARY MEDICINE will award winning students cash prizes totaling $200.00 to be paid on May 15, 1950, according to the following schedule:

First Prize	$100.00
Second Prize	50.00
Third Prize	25.00
Fourth Prize	15.00
Fifth Prize	10.00

Contest Rules

1. Clinical reports must be submitted before midnight April 15, 1950. Announcement of winners will be published in the June issue of VETERINARY MEDICINE.

2. Manuscripts should be brief and concise but no limits will be set on the maximum number of words. Tell your story.

3. Evidence must be submitted with manuscript of scholastic classification with signature of faculty member or affidavit.

4. A title page giving heading to the report together with your name, school, and address should cover the text material.

5. Judging will be on a basis of —
   (a) Descriptive for visualization of the reader who has not seen the case.
   (b) Amplifications properly placed
   (c) Fortification of conclusions
   (d) Accuracy
   (e) English form and composition
   (f) Physical appearance
   (g) Suitability for publication

6. Manuscripts should be mailed to VETERINARY MEDICINE, Suite 803, Livestock Exchange Building, Kansas City 15, Missouri.

7. All material submitted remains the property of VETERINARY MEDICINE.

Suggestions for Writing Case Reports

1. Theme should be developed logically (usually chronologically). A clinical report should include, in general, about the following in the order given:
   (a) Animal, age, size, color, sex, and instructions of the owner, (treatment, diagnosis, euthanasia, experiment, etc).
   (b) Anamnesia (all pertinent information elicited from the caretaker).
   (c) Appearance and symptoms.
   (d) Laboratory examinations, if made.
   (e) Interpretation of laboratory findings.
   (f) Diagnosis.
   (g) Treatment.
   (h) Results.
   (i) Discussion including frequency of occurrence, literature, economic importance, means of prevention, etc., as may be applicable. Make the report interesting and informative throughout and point out inferentially in the discussion its value.

2. Illustrations, whether they be photographs, drawings, tables, charts, or graphs, should be simple, clear and actually illustrate a pertinent point.

All who qualify under the contest rules are urged to enter the competition. Mail your papers, one or more, any time between this date and April 15, 1950.

Orally Administered Androgenic Therapy
Methyltestosterone Tablets

Methyltestosterone tablets by mouth provide a simple but effective means of administering the male sex hormone in small animal veterinary practice.

Studies on the activity of methyltestosterone as compared with that of testosterone propionate indicate some difference in potency, the latter substance injected parenterally being approximately three times as potent as methyltestosterone by mouth. However, the fact is generally accepted that when given in sufficiently large doses, methyltestosterone is as effective as the propionate, but there appear to be differences in the metabolism and mode of action of the two substances. This is brought out in the report of McCullagh, (*Cleveland Clin. Quart.* 8:79, 1941) who noted that clinically effective doses of the propionate caused a marked increase in excretion of urinary androgens, which did not occur to the same extent after methyltestosterone administration.

According to a report appearing in the question and answer section of the *Veterinary Record,* 61:390, 1949, loss of hair and squamous eczema appear to be not uncommon signs of testicular hypofunction in dogs. A hopeful form of therapy that suggests itself is replacement of impaired testicular function with the male sex hormone, testosterone.

When methyltestosterone is used in small animal practice it may be expected that the dosage and duration of therapy may vary considerably, depending upon the degree of loss of testicular function, duration, and individual variation to response. A feasible starting dosage would be about three times more than the suggested injectable dosage of the sterile aqueous suspension or propionate in oil, in daily divided dosages.

In human beings, methyltestosterone has been used for the suppression of lactation or breast engorgement in dosages of 25 mg. to 30 mg. every four hours or three times a day for five or six doses starting at the beginning of lacation. This may also prove useful in small animal practice as many cases are encountered in which it would be desirable to suppress or reduce the milk flow.

In addition to its specific androgenic effect, methyltestosterone appears to exert a general tonic and restorative action on the body functions.

The most striking metabolic effects of testosterone administration are those involving protein and electrolytes, (Kenyon, A. T. *et al., Jour. Clin. Endocrinology,* 23:880, 1944; Talbot, H. C., *Jour. Clin. Investigation,* 22:583, 1943). In common with the other steroid hormones, testosterone promotes the retention of water and electrolytes. Urinary excretion of sodium, chloride, phosphorus, and potassium are all markedly reduced during therapy. Similarly, urinary nitrogen and creatine are strikingly decreased by male hormone administration, while blood levels of urea and nonprotein nitrogen are also depressed. The somatotropic effect of testosterone results in a generalized increase in body musculature as attested by the rise in creatine excretion following treatment and by the increased ability to perform muscular work seen in the hypogonad human male after treatment.

Because of its apparent direct stimulating effect on the liver cells of experimental animals and its protein anabolic effect, Rosenak, (Rosenak, B., *et al., Gastroenterology.* 9:695, 1947) employed testosterone (25 to 100 mg. three times a week) in conjunction with general supportive therapy in cirrhosis of the liver. They reported that the drug seemed to be a valuable adjunct to routine therapy resulting in clinical improvement, although not influencing liver function. The protein anabolic effects of testosterone therapy, along with those of other steroid hormones, are being systematically investigated at present. — J. LAVERE DAVIDSON.

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New Poultry and Rabbit Grading Regulations

The U. S. Department of Agriculture recently announced that new regulations governing the inspection and grading of poultry and domestic rabbits have been approved by Secretary of Agriculture Brannan.

The new regulations, which become effective January 1, 1950, embody all grades, standards, specifications and labeling requirements concerning grading and inspection of poultry and domestic rabbits and take the place of all current regulations and specifications.

The new regulations provide for grading of ready-to-cook poultry which has been processed according to specified minimum standards for sanitation facilities and operating procedures. It is provided that such poultry need not be federally inspected for condition and wholesomeness to be officially graded by licensed graders of the USDA.

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Bad officials are elected by good citizens who do not vote.

PRINCIPLES OF ANIMAL HEALTH

R. R. DYKSTRA, D.V.M.
Manhattan, Kansas

A dairyman friend dropped in with the statement that one of his Jersey cows, ten years of age, failed "to make bag" at a previous freshening, and now, being again due to calve, is showing no evidence of mammary activity. The cow appears in excellent health, looks older than her ten years, and receives an adequate ration. Digestive upset was ruled out as a cause, as also was the question of ration inadequacy. The only remaining factor, in the absence of udder fibrosis, was early senility. Stimulation of the udder by the application of warmed blankets and the usual milking manipulations were recommended. Also, the intravenous use of whole pituitary extract or anterior lobe pituitary extract was suggested, though it is recognized that the action of these galactogogues is very transitory.

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A recent report carries the information that the virus of aftosa can now be propagated by the utilization of a medium having as its main constituent a living tissue from just beneath the upper surface of a cow's tongue—this being preserved in a physiologically balanced mixture of chemicals normally found in the cow's body.

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There are approximately 10,000 Brahman cattle owners in the United States, and about 110,000 registered Brahman cattle. The hump of this breed is just above the shoulders, it is larger in bulls than in cows, and consists of edible meat comparable to the usual cheaper cuts. The hide surface of Brahman cattle is greater than of the commoner breeds of cattle, and Brahmans are said to be the only cattle in the world that sweat through pores all over their bodies.

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Dr. L. Gross of the Veterans Administration in New York, has advanced a hypothesis that mammary carcinoma in mice is due to a "vertical" virus transmitted through the milk of the mother to her nursing offspring and on down to granddaughters, great-granddaughters, etc. If the offspring are nursed by a female that does not carry this "vertical" virus, the young will in general remain free from carcinoma of the mammae, though otherwise the incidence of mammary carcinoma is high.

An important preliminary announcement by Dreguss of the School of Veterinary Medicine, University of Pennsylvania, indicates that in dilutions up to 1:320, the serum or plasma of horses affected with acute swamp-fever caused hemoagglutination of chicken red blood cells. The titer decreased in the subacute stage, and virus carriers exhibiting no clinical symptoms had low values. It is an important step in the diagnosis of this elusive clinical entity.

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Curare by a conservative publication is designated "a truly remarkable drug". To the general public it is known as the South American arrow poison; to the veterinarian it is the dried extract of various species of *Strychnos* that paralyze the motor end-plates of nerves and thus overcome or reduce muscular spasm as in tetanus and other forms of muscular rigidity. In human surgery, it is finding more and more application when used in combination with pentothal sodium, ether, and others to obtain complete muscular relaxation especially in abdominal operations.

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In the 1947-48 Report of the New York State Veterinary College in regard to bovine traumatic gastritis and pericarditis, it is indicated that when no treatment was attempted the mortality averaged 66%; when rumenotomies were performed the mortality was 34.5%, and when the fore portion of the body was kept elevated for a few weeks the death rate fell to 12.1%.

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If the Journal of the American Medical Association of October 1, 1949, is at all available, veterinarians should read the article on page 326 entitled Control and Eradication of Brucellosis in Animals. The article is Report No. 1 of the National Research Council, Committee on Public Health Aspects of Brucellosis. It is a very informative, splendidly prepared and written essay. The authors are W. W. Spink, M. D., L. M. Hutchins, D.V.M., Ph.D., of Purdue University, C. K. Mingle, D.V.M. of the United States Bureau of Animal Industry, C. L. Larson, M.D., W. L. Boyd, D.V.S., University of Minnesota, C. F. Jordan, M.D. of Iowa State Board of Health, and Alice C. Evans, Ph.D., of brucellosis fame.

VETERINARY PARASITOLOGY

A. O. FOSTER, B.A., M.A., Sc.D.
Beltsville, Maryland

Cure of Sheep Scab with Benzene Hexachloride Dips

In May, 1949, the Bureau of Animal Industry, USDA, issued a processed circular entitled, "Sheep Scab and its Treatment with BHC". In this three-page article, copies of which are available upon request, veterinarians and sheepgrowers will find full information on an effective, single-treatment method of eradicating scab mites and curing infested sheep. The method consists in immersing sheep of infested flocks for at least two minutes in wettable BHC suspension, having an approximate 0.06% gamma isomer content. Thus, 100 gallons of dip may be prepared with eight pounds of wettable BHC containing 6% gamma isomer, or two pounds containing 24% gamma, or other commercial products of BHC in similarly proportioned amounts.

The BHC dip is especially well adapted to cleaning up scab on the farm and range. Scabies infested sheep that are destined for immediate interstate shipment, however, must be treated with one of the official dips, namely, lime-sulfur or nicotine sulfate. This is due to the fact that there is as yet no practical vat-side test for determining the strength of the BHC suspension after a number of sheep have passed through the dipping vat.

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Feeding Benzene Hexachloride to Bovines

Experiments in Africa* have demonstrated the internal administration of benzene hexachloride to cattle is fatal to blood-sucking East Coast fever ticks (four species) and tsetse flies. Action is sufficiently prompt and lasts for a sufficiently long time to suggest the possibility of controlling diseases transmitted by these pests through this unusual method of applying the insecticide. Other reports along this line have been equally convincing but have dealt with pests and diseases of less economic significance.

One calf weighing 160 pounds, given 0.5 gm. per kg. of body weight in two doses on successive days (a total of 65 mg. per kg. or 36.5 gm.), died in 90 hours, but feeding tsetse flies also died promptly. Doses of 0.3, 0.35, and 0.5 gm. per kg. were also fatal to some calves, but the blood of others was fatal to the flies for 11 to 13 days, and none of the treated calves developed East Coast fever although all of the controls contracted the disease on the 13th day. Other calves, given from two to eight doses over periods from four to 25 days at rates from 0.1 to 0.25 gm. per kg. (aggregate doses from 0.25 to 1.0 gm. per kg.) were generally unaffected by the chemical and most did not develop East Coast fever. Moreover, the blood of these calves was lethal to feeding ticks for periods of ten days or more. The product used was a commercial preparation containing 13% of the gamma isomer.

It seems possible from this and other studies that some insecticides, in the future, may be administered internally for purposes of killing external parasites and controlling diseases carried by them.

*Wilson, S. G., Bul. Ent. Res. 39(3):423-434, 1948.

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New Drugs in Coccidiosis

Marked developments in the chemical control of coccidiosis, particularly of poultry, appear likely in the near future. During recent years the sulfonamides, notably sulfamethazine, sulfaguanidine, sulfamerazine, and sulfaquinoxaline, have been popular. These are the first drugs, after elemental sulfur, that exhibited a satisfactory combination of efficacy and safety against this type of disease in domestic animals and poultry. During recent years, much work has been done with atabrine (mepacrine), notably in foreign countries, and the results leave little doubt of the activity and promise of this antimalarial drug. Nitrofurazone has also been described as effective and safe, and is now being marketed. At a conference on coccidiosis, held last March under the auspices of the New York Academy of Sciences, reports were given on the use and practical promise of nitrophenide, nitrofurazone, and certain bis-phenol derivatives. These and other facts suggest a trend toward drugs that are quite different from, and presumably superior to, the sulfonamides for the control of coccidiosis in poultry and other classes of livestock. Nitrophenide is a development of the American Cyanamid Company, Nitrofurazone of Drs. Hess & Clark, Inc., and the bisphenols of the Dow Chemical Company. These firms are in a position to give further information on these drugs.

POULTRY PRACTICE PROBLEMS

W. R. HINSHAW, D.V.M., Ph.D.
Frederick, Maryland

Suggestions for your library are the recently published books, briefly reviewed below:

(1) Fertility and Hatchability of Chicken and Turkey Eggs, edited by *L. W. Taylor* and published by John Wiley and Sons, Inc., New York. This book is sponsored by the Research Committee of the International Baby Chick Association and its nine chapters are written by specialists in their respective fields. Information on all phases of the subjects can be found in the book and a glossary of scientific terms is included. Examples of subject matter are: nutrition of the breeding flock, formation of the hen's egg, fertility and care of hatching eggs, biochemistry of the developing egg, physical conditions in incubation, genetics and physiology of embryonic development, and diseases in relation to hatchery operations.

(2) Advances in Food Research, Vol. 1, edited by *E. M. Mrak* and *G. F. Stewart*, and published by Academic Publishers, Inc., New York. The ten sections in this volume cover a wide range of subject matter in the field of food. Examples of information to be found in the book are: physiology of rigor mortis with especial reference to the aging of beef, factors influencing the vitamin content of canned food, biochemical factors influencing the shelf life of dried whole eggs, factors influencing the palatability of poultry, and microbial inhibition by food preservation. This volume is the beginning of a series to be published at intervals as subject matter is accumulated.

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According to Jungherr, Luginbul, and Kilham (*Science*, 110:333, 1949), the presence of neutralizing antibodies in human blood serum is not positive proof that the person has had contact with the disease. They base this assumption on the fact that they have found a possible relationship of the virus of Newcastle disease (avian pneumoencephalitis) to the virus of mumps. In 22 mumps patients studied by them, 13 yielded blood samples with neutralizing indices of 250 or greater and ten of these had indices of over 1,000. In contrast, only three of 23 serums from control patients had indices over 250 and none were over 800. They suggest that diagnosis of Newcastle disease in man should be made with caution, especially in the absence of virus isolation.

No one recommendation can be made for the control of cannibalism. The first prerequisite to successful control is to find the cause if at all possible to do so. Nutrition, and even genetics must be considered. Sometimes a "boss" in the group may be responsible for starting others to develop the habit. Management factors which may be responsible include overcrowding, and insufficient waterers and feeders. Debeaking by one of several methods is a preventive.

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Two journals which should be on the reading tables of veterinarians who have a poultryman clientele are *Poultry Science* and the *World's Poultry Science Journal*. The former is the official journal of the Poultry Science Association, and is edited by Dr. R. George Jaap, Ohio State University, Columbus, Ohio. The second journal is the official organ of the World's Poultry Science Association, and is edited by Dr. G. F. Heuser, Cornell University, Ithaca, New York. Both journals publish reviews and original papers on all poultry subjects including disease. The *World's Poultry Science Journal* also has an abstract section in each issue, which contains abstracts from all over the world.

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Mehrhof and O'Steen (Florida Agric. Exper. Stat. Bul. 451, 1948) report on a series of experiments to determine the optimum floor space for broilers. They found that the birds which were allowed one square foot of floor space with a yard, were the most profitable on a per bird basis. Birds given the same yard space with one-half the floor space were the least efficient.

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Vermont has established an enviable record in its National Poultry Improvement Pullorum Disease Eradication program. In the 1948-49 testing season not a single reactor to the agglutination test was reported.

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Broodiness in turkeys is a heritable factor and can be reduced markedly by appropriate breeding methods, (Report of the Chief of the Bureau of Animal Industry, USDA, 1948). Broodiness during the hatching season may mean the difference between profit and loss for individual birds.

CLINICAL REPORTS

Panting in Cattle

W. H. LINDLEY, D.V.M., Vicksburg, Miss.

A call was received about 10 a.m. on September 21, 1949, relative to three sick cows in a group of eight, which included three six-month-old calves. One cow had been found dead in pasture three days previous to this call. All the cattle were in a hilly, half-woods, over-grazed pasture and were being fed some new corn on the stalk.

The three sick animals ranged in age from three to eight years, were in fair flesh, clear eyed and alert, but breathing hard as though quite hot or over-exercised, despite the fact that they had been quiet in a dry, shady lot for several hours. The remaining cattle in the group were breathing normally.

All of the cattle would eat and drink, though the affected animals were less interested in feed than the others and were less inclined to move. All had grossly normal feces and urine; the temperature of the two most severely affected cows was about 101.8 F. Mucous membranes on all were normal to slightly darker than normal. No distinct pathological sounds were recognized on auscultation of the lungs. The third cow affected had a temperature of 103.5 F.

The cow which had been found dead previously was said to have been swollen with air under the skin over the chest region. The animals now sick made sounds of distress when forced to exert themselves.

All eight animals were vaccinated with 5 cc. hemorrhagic septicemia bacterin and with ¼ cc. intradermal anthrax spore vaccine. The febrile cow was given a combination of sulfamethazine, sulfathiazole and sulfapyridine parenterally and sulfanilamide was dispensed. It was suggested that the other two sick cows showing no fever were probably past the acute phase and not likely to be favorably influenced by treatment with sulfonamides. Since there was an element of doubt as to the exact nature of the disease, it was suggested that should any animal subsequently die, a prompt autopsy be performed.

The owner reported the death of one of the afebrile sick cows—also that sulfanilamide had not been given to the febrile one due to lack of help. The cow which died was on a hillside a considerable distance from the point where it was necessary to leave the auto, but was located by lantern light. The subject was not stiff and probably had been dead about two hours. This was a three-year-old grade jersey, weighing about 500 lb. She was found lying on the right side, with the head slightly downhill. There was no evidence of struggling, no blood or other discharge from external body orifices was noted and no swelling, other than slight bloat.

Autopsy disclosed all organs grossly normal except as follows: Some hemorrhages on the heart muscle and tracheal lining; lungs hugely emphysematous with practically all air sacules bursted, but not through the visceral or pulmonary pleura, which was intact. Much of the lung had a "bubbly" appearance. Hemorrhages in lungs were not prominent, despite this apparently forcible ballooning effect. A smear made from heart blood was negative for organisms when stained by the Gram method.

The remaining two affected cows gradually recovered though remaining quite dyspneic for four or five days.

Panters in cattle was described by Butler & Farquharson in 1943, Proceedings of the U. S. Livestock Sanitary Association[1], as follows: This condition of cattle as it has been seen in various parts of the United States, particularly in Arkansas, Colorado, Missouri, and Montana, is typically an idiopathic pulmonary emphysema; affected animals separate from the herd, breathe like a horse with heaves, carry a variable temperature, up to 106 F., make audible respiratory sounds and may protrude the tongue. A peculiar feature is that all panters die on their feet.

Death may occur in as little as five to seven hours; resistance to restraint, or the driving of sick animals, usually precipitates death. In Arkansas, heaviest losses have occurred in late summer, during drouthy periods when cattle are moved into oak-wooded hills from valley pastures and when natural water supply is at a low ebb; however, sporadic cases have been noted at all times of the year. Post mortem reveals a complete blow-out or rupture of the lungs. The larynx and trachea show congestion, but no necrosis. Railsback[2] reports bacterins containing Corynebacterium or *Pasteurella pseudodiphthericum* stop appearance of new cases within eight days, but losses are apt to continue if this is not given. Laboratory examinations have failed to incriminate either bacterial or virus pathogens.

A similar, if not identical, condition in cattle is described under the heading Pulmonary Emphysema, by Udall[3] and was thought to result from an infection with the hemorrhagic septicemia organism, though the lesions may not indicate it. Panting in cattle is described by Minett[4] as a disease well known in India and generally regarded as a sequel to foot-and-mouth disease, being of a chronic nature, resulting in unthriftiness and marked by extreme sensitivity to heat. The panting and drooling appear to be aggravated in the heat of the day, but subside at night. There is apparently no relationship between this type[5] of panting and that seen in America.

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Editor's Note

It is the opinion of some practitioners that pulmonary emphysema, resulting in symptoms referred to as panters in cattle, is an allergic manifestation due to the ingestion of sensitizing agents. In consideration of the role of histamine in sensitized animals, it is suggested that the employment of antihistamine therapy may give relief in early cases. According to Dr. G. W. Rawson (Allergy and Antihistamine Therapy in Veterinary Practice. *Vet. Med.*, 44:489 (Dec.), 1949), an intravenous dose of 500 mg. of a 2% solution of pyribenzamine, or equivalent, is a favorable antiallergic agent. Care should be exercised in administration.

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A Report on Control of Equine Sclerostomes with Fractional Daily Doses of Phenothiazine

A. H. QUIN, D.V.M., Kansas City, Missouri

Following the report by Dimock in VETERINARY MEDICINE (March 1949), on the successful control of equine strongyle larvae with 30 gr. daily doses of phenothiazine, a field test was instituted at the Woolford Thoroughbred Stud near Kansas City. This farm carries such noted stallions as Lawrin, 1938 Kentucky Derby winner, Blue D'Or, Maida and Historian.

Sixteen head of yearling Thoroughbreds, kept under summer pasture conditions, were selected for observation. All showed extremely heavy strongyle egg counts in fecal samples. Five head also revealed ascarid eggs. These yearlings were given a powder containing 30 gr. of phenothiazine, 40 mg. of riboflavin, 1,000 units of vitamin D with calcium, phosphorus and trace elements per tablespoonful, in the feed once daily. Medication was continued for three weeks, then withheld for a week, and repeated for three weeks.

At the end of nine weeks and 12 weeks on this cycle of treatment, a five-ball dung sample was collected from each yearling. Exact egg counts were made according to the technic outlined by Stoll[1]. Quantitative egg counts, following nine to 12 weeks of a 30 gr. per day intake of phenothiazine, revealed an egg count of 300 or less strongyle eggs per gram of feces (see table I). Of the 16 head, 12 showed complete absence of nematode eggs. No change was noted in the ascarid egg count.

TABLE I—REDUCTION IN SCLEROSTOME EGG COUNT NINE AND 12 WEEKS FOLLOWING FRACTIONAL DAILY DOSE OF PHENOTHIAZINE

Name of Horse	Egg Count Per Gram of Feces June 25, 1949 (9th Week)	Egg Count Per Gram of Feces July 25, 1949 (12th Week)	Remarks
Larado*	66	0	Free from eggs
Logical	133	0	Free from eggs
Sylvestra (colt)	0	0	Free from eggs
Insco Lassie*	866	200	Marked reduc.
Bohemian Lass	66	0	Free from eggs
Iggy (colt)	0	66	Slight increase
Even Stitch	0	0	Free from eggs
Wise Niece (filly)	200	0	Free from eggs
Heartening (filly)	0	0	Free from eggs
Up Swing (colt)	0	0	Free from eggs
Vice Versa (colt)*	200	333	Slight increase
Achieve (colt)*	66	133	Slight increase
Mixed Emotions*	66	0	Free from eggs
Versatility	0	0	Free from eggs
Scarlet Insco	133	0	Free from eggs
Better Be Good	0	0	Free from eggs

*Ascarid eggs present.

NOTE: Egg counts below 200 per gram are considered as negative under practical conditions.

The following conclusions can be drawn:

1. A daily, 30 gr. intake of phenothiazine over a 12 week cycle of treatment, resulted in complete control of strongyles or reduction to subclinical levels.

1. Stoll, Norman R., On Methods of Counting Nematode Ova in Sheep Dung. *Parasitology*, 22:116-136 (January), 1930.

2. The 30 gr. daily dose of phenothiazine failed to cause any reduction of ascarid infection.

3. Our observations confirm those made by Dimock of the Kentucky Experiment Station.

A ration additive containing the requisite amounts of phenothiazine, riboflavin, trace elements, vitamin D, calcium and phosphorus, should effectively control strongylosis, periodic ophthalmia and many of the deficiency complexes.

The formula used in this experiment was supplied by Jensen-Salsbery Laboratories as ribophene-D. The cooperation of Dr. Thomas Fowler, Kansas City and Mr. George Waldmann, Woolford farm manager is gratefully acknowledged.

▼ ▼ ▼

Further Observations on the Use of B Vitamins in Standardbred Horses

JOHN RAE STEELE, D.V.M., Saratoga Springs, N. Y.

In a previous report[1], the treatment of Standardbred horses with members of the vitamin B complex in cases of tying up or muscle cramps and chronic indigestion were described. Since that time, futher work has been done and additional information is presented in this report.

Fifteen cases of muscle cramp (tying up) were treated. These cases ranged from chronic patients to those not previously affected with this condition. On the first visit, all affected animals exhibited similar symptoms. They were sore over the hind parts to such extent that they had difficulty in walking. This was due to severe cramping of the gluteal muscles over the rump. On palpation, these muscle groups were found to be tense and firm. These signs usually became evident when the horses were exercised after a rest of two or three days. The history and symptoms were similar to those associated with azoturia, but seldom did a hemoglobinuria occur simultaneously with paralysis.

Horses with muscle cramps were treated by intramuscular injection of the contents of two vials of lyo B-C* daily until the individual walked with a normal gait. The length of treatment varied. In one acute case injections were continued for only three days. In the most severe case, daily injections were given for approximately two weeks. Thereafter, the animal was exercised and treatment continued two or three times weekly until the horse could undergo full training without suffering a recurrence of the condition. In most cases the treatment was given for about two weeks after the onset of symptoms. In two cases the vitamins were administered daily for as long as six weeks.

Previously, lyo B-C had been administered intravenously, but in the present study it was given by intramuscular injection into the gluteal and pectoral muscles. The initial dose, however, was given intravenously in order to produce a high blood level promptly. It should be noted that not more than 5 cc. were given in any one site. This precaution prevented the swelling previously observed to occur when larger doses of the drug were given by the intramuscular route.

In all 15 cases, recovery was complete in from two to six weeks, as judged by a return of the horses to full time training.

Lyo B-C was used also for horses showing partial or complete anorexia. In the group chosen, no physical signs of any specific disease could be detected. Animals remained in poor condition, were underweight, and had little endurance during strenuous exercise.

Twenty such cases were selected for treatment. All of these horses were poor feeders and had spells of complete anorexia. Lyo B-C (two vials) was given intramuscularly three times during the first week. Following the initial period, the same dose was given twice a week for two weeks or more until the individual had an improved appetite and was gaining weight. Usually three weeks of treatment sufficed.

It is interesting to note that, in a typical case, after the animal began eating well no further treatment was needed, and it is assumed that the requirements of the vitamin B complex were provided by the ration that was fed. Apparently, the injected vitamins stimulated the appetite of these animals.

In these two conditions, muscle cramps and poor feeders, the vitamin B complex administered parenterally, was of value and each of the cases treated responded well to the therapy described.

*Lyo B-C is the registered trade name of this Sharp & Dohme product. Each vial was restored with 5 cc. of sterile distilled water and contained the following: Thiamine hydrochloride 100 mg., riboflavin 10 mg., pyridoxine 10 mg., calcium pantothenate 50 mg., niacinamide 250 mg., ascorbic acid 200 mg.

REFERENCE

1. Steele, John R., Use of B Vitamins in Standardbred Horses (A Preliminary Clinical Report). *Vet. Med.*, 43:361 (Sept.), 1948.

ABSTRACTS OF LITERATURE

Histamine in the Eye

Certain diseases of the eye have been treated traditionally with agents that produce vasodilation of the conjunctival vessels. The theory back of the use of such drugs is the benefits to be derived from the resulting blood and lymph bath to the diseased tissue.

In a discussion of the use of histamine in the eye in man[1], Shepperd reports relief of symptoms of pain in episcleritis by the instillation of histamine diphosphate solution (0.275 mg. per cc.) into the conjunctival sac. A blush effect is produced almost immediately that persists over a period of three to 18 hours.

Results of the use of histamine in cases of cataract, corneal leukoma, and glaucoma were inconclusive. The author, however, suggests that such therapy conceivably might be advantageous in these and other eye anomalies and recommends further investigations to define its value in human opthalmology.

▼ ▼ ▼

Treatment of Joint-Ill

Results from subcutaneous injections of sodium sulfamethazine in joint-ill (pyoseptic-emia) of foals were remarkably good[2] when the daily dose was 1.5 gr. per pound of body weight for the first day, reduced to 1 gr. on the second day and to 0.75 gr. on the third and fourth days.—G. L.

▼ ▼ ▼

Horses Get Brain Diseases

Prof. E. Seiferle[3] investigated 58 cases of brain diseases in horses from a pathologic-anatomic as well as neurologic-psychologic point of view. All the animals showed disturbances of consciousness, partial or complete loss of contact with the surrounding world, and hypersensitivity leading to delirium or, very often, to extreme dullness, incoordination of movements, and lowered sensitiveness. The cause of this condition is usually an edema of the brain due to vessel damages of as yet unknown origin. Purely functional psychosis, as it occurs in human beings suffering from mental disorders, is not known in animals.—G. L.

[1]Shepperd, Edwin M., M.D., Histamine in the Eye. *West Virginia Medical Jour.*, 45:62 (March), 1949.

[2]Schofield, F. W., Sulfamethazine (Sulmet) in the Treatment of Joint-Ill in the Foal. *Rept. Ontario Vet. Coll.*, 29:128-130. (1948).

[3]Seiferle, E., Gehirnkrankheiten des Pferdes und Tierpsychologie (Brain Diseases of Horses and Animal Psychology). *Bul. Schweizer Akademie med. Wiss.*, 4 (Fasc. 2/3):243, reported in *Grenzgebiete Med.*, 2:276 (1949).

▼ ▼ ▼

Tularemia in Fur Bearers

The feeding of wild rabbits is a common practice of fur farming, particularly among mink raisers. A potential danger exists in the practice because of the susceptibility of both mink and fox to tularemia.[7]

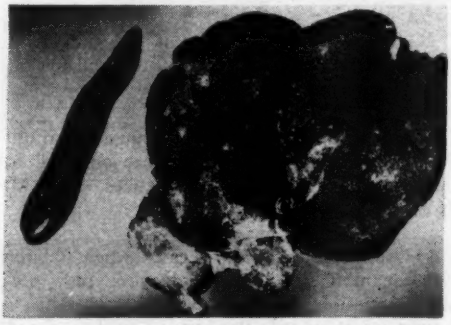

Fig. 1—Spleen and liver from a tularemia infected rabbit showing many areas of necrotic foci.—Courtesy of Rocky Mountain Laboratory.

The author cites an outbreak of tularemia in mink in which the source of infection was shown to be two rabbits which the owner's dogs had carried home. The typical spotted liver and spleen were observed on necropsy.

Typical small foci of necrosis may be seen on the surface and in the deep substance of the liver and spleen in animals dead of tularemia (Fig. 1). It is possible, however, for a rabbit to carry the causative organism and show no macroscopic changes in these organs. The author suggests that as an aid in preventing the occurrence of the disease on fur farms, rabbits be examined before feeding and that no sick rabbits be fed. He also suggests that in areas where rabbits are known to be decreasing in number that tularemia may be taking its toll of these rodents.

[7]Gorham, John R., Tularemia in Fur Bearers. *The Black Fox and Modern Mink Breeder*, 33:16 (Oct.), 1949.

VETERINARY ITEMS OF INTEREST

No amount of penicillin will heal a kidney shattered by leptospiral infection.

▼

Rickets can be experimentally produced by a diet containing adequate calcium but that is deficient in phosphorus content. Cases are unidentifiable with those produced by diets containing too little calcium.

▼

There is said to be as much variation in lardiness of individuals as in breeds of hogs.

▼

The sow, not the boar, is primarily responsible for the number of pigs born per litter.

▼

Good green grass is full of B_{12}, and a lot of other good things to eat, for all classes of farm livestock.

▼

Proper handling and the adequate restraint of the veterinarian's patients are essential to public approval of his practices.—W. M. Coffee.

▼

Hysterectomy during periods when a bitch may exhibit signs of pseudocyesis may prolong lactation. It is best to operate only in the anestrus stage of the estrus cycle.—Frank A. Booth.

▼

Two-inch gummed paper, the ordinary material used to seal parcels, serves very well in taping the ear flaps of dogs.

▼

Lupulon, new antibiotic derived from hops, is hailed as having antituberculosis action when employed in laboratory animals. Its use is still experimental.

▼

Nature has endowed most fish with ability to reproduce far more of their kind than can be reared to usable size in a given body of water.—*S.N.L.*

▼

Of the three principal components of food, carbohydrates are abundant; fats, while not present in large quantities, are still fairly plentiful; but the supply of protein is strictly limited. —*S.N.L.*

▼

Storage losses in eggs from hens infected with avian pneumoencephalitis are much higher than from non-infected hens.—*Poultry Digest*

As a replacement for talc, a wholly safe and efficient dusting powder is now available. Bio-sorb, manufactured by the Ethicon Suture Laboratories, Division of Johnson and Johnson, New Brunswick, N. J., is a mixture of amylose and amylopectin, derived from corn starch, with a small amount of magnesium oxide added. It is treated physically and chemically to assure good lubrication after sterilization.

▼

Field experience has shown the value of sulfonamide combinations.

▼

Sanitary management to prevent small injuries to the cleft of the feet in cattle reduces the incidence of foot-rot.

▼

It is not remarkable to learn that two species of mosquitoes are added to the list of insects that have developed resistance to DDT and are not killed by applications of this drug. This is the manner of nature through the ages. It is, nevertheless, worrisome that many others of the pests that plague man and animals will develop to resist these new insecticides in which much pride has been taken. The moral of the tale is that efforts must be continued to seek new surprise methods and materials to attack and destroy our enemies.

▼

We use a tonsil snare to dock tails of baby puppies.—Frank A. Booth.

▼

Ninety-eight per cent of horses with fistula or poll evil have a high blood titer against brucellosis.—W. M. Coffee.

▼

Pet dogs are sometimes found to be suffering from the same dietary diseases as members of the owner's family.

▼

A radio in the kennel keeps dogs contented and greatly lessens barking.—*Gaines Dog Research Progress*

▼

Don L. Brooks and E. E. Harnden, Oklahoma Agricultural Experiment Station, report that vaccination of turkeys which were free of pullorum disease with cholera-typhoid vaccines did not cause the birds to react to the standard test for pullorum disease when tested later.—*Poultry Digest*

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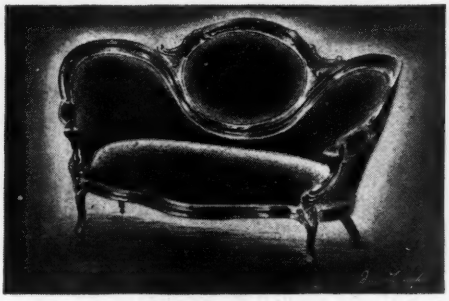

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BOOK REVIEWS

PRACTICAL VETERINARY PHARMACOLOGY—MATERIA MEDICA AND THERAPEUTICS, by *Howard Jay Milks*, D.V.M., Sixth Edition. 720 pages. Alexander Eger, Inc., 21 East Van Buren, Chicago, Publishers, 1949.—Price $10.00.

Students of veterinary medicine for 20 years and more in the United States and Canada have become familiar with this work of Doctor Milks in the classroom and many have, during this period, kept it handy for reference. The fact that this is the sixth edition to be published gives evidence of the popularity of the text.

Rapid advances in veterinary therapeutics, due primarily to new discoveries in the field of chemistry of medicinal products as well as to biochemistry and physiology make new text material necessary. This is especially true with respect to sulfonamides, antibiotics, and parasiticides, not to mention the new therapeutic uses of nutrition elements; such as amino acids, vitamin factors, and trace minerals.

The author has, in this new edition, rewritten several chapters and made changes in others. New material has been added to effect an overall enlargement of the work. Dr. Alexander Zeissig has written the chapter entitled Biologic Diagnosis, Prophylaxis and Therapy.

As a practical reference text for the veterinary student and proctitioner, *Practical Pharmacology, Materia Medica and Therapeutics* has no peer. Pharmacodynamics of the common agents used by veterinarians is not exhaustive, nor could it be, considering the scope of the material presented.

The analogy drawn to the use of therapeutic agents as tools (chapter XXXII, p. 644), as the artist uses brush, paints and canvas to create a picture is apropos. The artist's skill, like that of the veterinarian's, limited by his skill and knowledge, determines the quality of the final results of his efforts. Failure to attempt to make an accurate diagnosis of pathological processes and abuses of therapy such as employment of favorite remedies for a range of conditions is quackery even though prescribed by licensed professional practitioners. There are none to deny the advantages of rational therapeutics or the essential necessity of its application to effect resolution of pathological conditions.

NEOPLASMS OF THE DOG, by *R. M. Mulligan*, M.D., Professor of Pathology in the University of Colorado School of Medicine. 135 pages, 194 illustrations. The Williams and Wilkins Company, Baltimore, Md., Publishers, 1949. Price $4.00.

Statistics covering investigation of 1,000 neoplasms collected from 809 dogs form the basis of the material contained in this book.

The commonest neoplasms are classified and described in accordance with their occurrence in body regions. Suggestions for treatment and possible etiologic factors are discussed. Reproductions of microphotographs illustrate the text material which is presented in scholarly fashion.

Bulletins — Circulars — Booklets

B-Vitamins for Weanling Pigs.—The seriousness of the weanling pig problem and the interest in B-vitamin supplementation have made it desirable to suggest supplemental allowances of the B-vitamins for weanling pigs.—Article 32-23, reprinted from Michigan Agricultural Experiment Station Quarterly Bulletin, East Lansing, 32:191 (Nov.), 1949.

▼ ▼ ▼

Vitamin Deficiencies In Rations of Natural Feedstuff.—Swine rations consisting of yellow corn, tankage, casein, linseed oil meal, vitamin A and D concentrate, and mineral supplements have been shown to be deficient in known growth factors when fed to laboratory animals.—Research Bulletin 432, Agricultural Experiment Station, University of Missouri, Columbia.

▼ ▼ ▼

Calf Mortality.—A study of the records of the dairy herds operated by Michigan State College indicates that calf losses over a period of 16 years have been considerable. Of 1,467 calves born, 13.7% failed to survive beyond the tenth month of age. This mortality figure is comparable to those from other studies that are cited.—From summary, Losses of Calves in Dairy Herds, Quarterly Bulletin, Michigan Agricultural Experiment Station, 32:42 (Aug.), 1949.

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Combined Use of Crystal-Violet Vaccine and Anti-Hog-Cholera Serum.—Results of a series of experiments indicate that serum interfered with the immunizing properties of crystal-violet vaccine.—Circ. 807, USDA, Washington, D. C., April, 1949.

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enteritis in calves

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